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CATALOGUE
OF THE
M O L L U S C A
IN
THE COLLECTION
OF THE
BRITISH MUSEUM.

PART I.
CEPHALOPODA ANTEPEDIA.

PRINTED BY ORDER OF THE TRUSTEES.

LONDON: 1849.

H. Underhill



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P R E F A C E .

THE chief objects in forming the present Synoptical Catalogue have been, to exhibit at one view a complete list of all the specimens of MOLLUSCA at present in the British Museum collection, and to furnish such an account of the species known to exist in other collections, but which are at present desiderata in the British Museum, as the materials at hand would permit me to compile, in order to enable travellers, collectors, and others, to assist in completing the national collection.

For this purpose, short descriptions have been given of all the genera and species of recent Mollusca at present known to exist in the different museums and private collections, and of the better-known fossil species of the various families.

At the end of each description is added an enumeration stating the state, age, country, or strata, and other peculiarities, of each specimen of the kind in the Museum collection; and, when the species is not at present in that collection, the museum in which it has been observed is often added after the general habitat or locality of the species. The different individuals of each species contained in the British Museum collection are indicated by the letters *a, b, c, &c.*

Those specimens which have been presented to the Museum *have the name of the donor* marked immediately after the

INTRODUCTION.

SUB-KINGDOM III. MOLLUSCA.

Body soft, fleshy, destitute both of any bony skeleton supporting jointed limbs, and of a hard ringed skin, or external skeleton. Generally elongate, walking on a single central foot or disk, and furnished with one or more pairs of organs on the head and sides. The nervous system consists of a number of medullary masses distributed to different parts of the body; one of the masses placed over the gullet, and enveloping it like a collar.

The body is furnished with a muscular coat, called a mantle, endued with a glairy humour, and generally furnished with a calcareous envelope called a shell, secreted by the mantle, and protecting the body, or the more vital organs of the animal. There is generally a mantle on each side of the body, each furnished with a shell; but the shells on the two sides are often very differently sized, that on one of the sides is in some only rudimentary, and in others they both are wanting in the adult. Some animals which have two unequal valves in the fetal, or very young, state, lose them when they grow up.

- Mollia (sect. A. Exanguium) *Androv. de Moll.* 1618; not *Eichw.*
Mollusca seu Mollia (genus Exanguium) *Jonston, de Exang.* 1650.
Malacoderma *Rondel. Exang.*
Mollusca (ordo Vermium) *Linn. S. N.* ed. 10. 641. 652. 1758, ed. 12.; *Müller, Z. Dam. Prod.* 28. 1776; *Brug. E. M.* 1789.
Mollusca *Poli, Test. Sicul.* i. 25. 1791 (exclus. *Cirripodes*); *Cuvier, Tab. Elém.* 1798, *Anat. Comp.* 1800, *Rég. Anim.* ii. 1817, ed. 2. 1830 (excl. *Cirrhopoda*); *Lamck. Syst.* 50. 1801, *Phil. Zool.* i. 315. 1809; *Schwieger, Naturg.* 187. 612. 689. 1820.
Mollusca pars (Testacea) *Swainson, Malac.* 4, 5. 1840.
Mollusca and Conchifera *Lamck. Hist.* vi. 259. 1819.
Molluscitæ *Schloth. Petref.* 45. 1820.
Therozoa *Eichwald, Zool. Special.* i. 258. 1829.
Pænulata *Latr.*
Gangliata (Mollusca) *Fleming, Brit. Anim.* 224. 1828.

- Ganglioneura *Rudolphi*, *Beitr. z. Anthrop.* 1812.
 Malacosia *Rafinesque*, *Anal. Nat.* 40. 1815.
 Apalasia *Rafinesque*, *Préc. Som.* 12. 1814.; *Anal. Nat.* 137. 1815.
 Brachiopneusta *Fischer*.
 Malacozoa (Les Malacozoaires) *Blainv. Journ. Phys.* 1816; *Man. Malac.* 362. 1825; *Bronn, Gesch. de Nat.* iii. 1847.
 Malacozoa *Blainv. Dict. Sci. Nat.* xxxii. 171. 1824.
 Gasterozoa *Carus, Ueber Thierr.* 1826; *Oken, His.* 1828.
 Dermatozoa *Fitzinger, Syst. Rept.* 8. 1843.
 Mollusques or Malacozoaires *Blainv. Bull. Soc. Philom.* 1816, 12. 2.
 Mollusca or Cyclogangliata *Grant, Outlines, Lectures*, 1833, 17.

Synopsis of the Classes.

A. *Animal crawling on a Foot placed under the Body.*—Pedifera.

- I. GASTEROPODA (*Gasteropodes*). Head distinct, furnished with eyes and tentacles, and usually protected by one large conical valve, the other being rudimentary or abortive.
- II. CONCHIFERA (*Conchifers*). Mouth placed between the gills; they and the body being enclosed between the two large leaves of the mantle, which are covered with two equal or subequal valves, united along the back by a cartilage.

B. *Animal destitute of a Foot, or with only a rudimentary one.*—Apoda.

- III. BRACHIOPODA (*Brachiopodes*). Mouth placed at the base of two spirally twisted ciliated arms, between the two leaves of the mantle, which are covered with two separate shelly valves. They live attached to other marine bodies.
- IV. PTEROPODA (*Pteropodes*). Head prominent, with one or two pairs of fins on the side of the neck, by which they move about in the ocean. Body often covered with a thin, glossy, conoidal shell.
- V. CEPHALOPODA (*Cephalopodes*). Head large, distinct, furnished with eight or ten or more arms, by means of which they head downwards.

CATALOGUE
OF
C E P H A L O P O D A.

CLASS IV. CEPHALOPODA.

Head large, separate from the body. Eyes large, complex, lateral. Ears developed. Mouth armed with two horny or shelly jaws, edged with fleshy lips, and surrounded by eight or ten fleshy arms, or numerous tentacles; and furnished with an entire or slit tube, or *siphuncle*, used in locomotion.

Body ovate, roundish, or cylindrical, open in front, containing the viscera and one or two pair of internal symmetrical gills; naked; surrounded by a thin shell, with a single cavity? or partly or entirely contained in last chamber of a chambered shell, furnished with a siphon passing from chamber to chamber.

Individual unisexual.

Animal free, walking on its head or swimming in the sea; propelled by the water from the siphon tube.

The water of respiration enters the large aperture in the front of the body, and is expelled through the siphuncle, carrying with it the faeces. The large nervous ganglion is contained in a cartilaginous case, sending fibres to all parts of the body.

Cephalopoda *Cuvier, Tab. Elém.* 1798, *Anat. Comp.* 1800, *Règne Anim.* 1817; *Férussac, Tab. Syst.* 18. 1819; *Lamck. Phil. Zool.* i. 322. 1809, *Ext. d. Cour.* 1812; *De Haan, Monog.* 1825; *Grant, Lect.* 1833; *D'Orbigny, Moll. Viv. et Fos.* i. 107. 1845; *Gray, Proc. Zool. Soc.* 1847, 264.; *Owen, Trans. Zool. Soc.* ii. 103. 1838.

Pterygiorum *Latr. Fam. Nat.* 153. 1825.

M. brachiata (pars) *Poli, Test. Sicil.*

Cryptodibranchiata *Blainv. Dict. Sci. Nat.* xxxii. 172. 1824; *Man. Malac.* 364. 1825.

- Cryptodibranchia or Brachiocephala *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818; *Menke, Syn.*
 Antliobranchiophora *Gray, Lond. Med. Rep.* 1821.
Mollia Eichwald.
 Cephalodelia Cephalopodia *Rafn. Anal. Nat.* 138. 1815.

Synopsis of Orders.

Subclass I. *ANTEPEDIA*. — Body naked. Shell none, or internal. Head separate, with eight or ten fleshy arms furnished with cups. Gills two. Siphuncle entire. Foot none.

Order I. *OCTOPIA*.

Arms eight; Cups sessile, without any horny ring. No internal medial dorsal Shell. Eyes fixed in the skin.

Order II. *SEPHINIA*.

Arms ten, two longer; Cups peduncled, with a horny circle. Internal medial Shell. Eyes free in the orbit.

Subclass II. *POLARNAXIA*. — Body without fins, enclosed in the last chamber of a siphoned-chambered external shell. Head not separate from the body, with a great number of cylindrical annulated retractile tentacles, without cups. Gills four. Siphuncle slit. Foot-like appendage distinct.

ORDER III. *NAUTILIA*.

Subclass I. *ANTEPEDIA*.

Body naked. — *Shell* none, or internal. — *Foot* none.
Head separate, with eight or ten fleshy arms furnished with cups.
 — *Gills* two. — *Siphuncle* entire.

Cephalopoda nuda *Cuvier, Anat. Comp.* 1800; *Lamck. Ext. d. Cour.* 1812; *Schwieger, Naturg.* 1820.

Cephalopoda (testa nulla) *Lamck. Phil. Zool.* i. 322. 1809.

Cephalopoda libera *De Haan, Mon. Amm.* 1825.

Cephalopoda cryptodibranchia *D'Orb. Ann. Sci. Nat.* vii. 96. 1826;
Menke, Syn. 1. 1828, ed. 2. 1. 1830; *Grant, Lect.* 1833.

Mol. Cephalorum natantium Sepiadæ *Flem. Brit. Anim.* 225. 1828.

Cephalopoda acetabulifera *Férus. & D'Orb. Hist. d. Céphal.* 1834;
D'Orb. Moll. Viv. et Fos. i. 157. 1845.

ryptodibranchia nuda *Blainv.* 1814; *Dict. Sci. Nat.* xii. 88. 1818.

anchista Blainv. Dict. Sci. Nat. xxxii. 172. 1824.
Leach, Zool. Misc. iii. 1817.

- Cephalopoda dibranchia *Owen, Trans. Zool. Soc.* ii. 103. 1838.
C. dibranchiata Gray, Proc. Zool. Soc. 1847, 204.
 Antliobrachiaphora, Anosteophora, et Sepiaphora *Gray, Lond. Med. Rep.* 1821.
C. antepedia Rafin. Anal. Nat. 139. 1815.

ORDER I. OCTOPIA,

Body short, rounded, united to the head by a broad cervical band. Sometimes ? covered with a thin single-chambered shell.

Head very large, with aquiferous opening; none on the gills or lips. Siphuncle without any internal valve. Eyes fixed, united to the skins, incapable of rotation. Buccal membrane none.

Arms eight, all sessile, without swimming membranes. Cups sessile, flat, and without any horny ring. Tentacular arms none. No internal medial dorsal shell.

The front of the mantle is supported by a fleshy band or by fleshy buttons on the siphon (*apparatus of resistance*, D'Orb.), fitting into grooves on the inner side of the mantle.

Cephalopoda octopoda *Leach, Zool. Misc.* iii. 1817; *Férussac, Tab. Syst.* 18. 1821; *Gray, Proc. Zool. Soc.* 1847, 204.; *Latr. Fam. Nat.* 167. 1828.

Antliobrachiaphora, Anosteophora, *Gray, Lond. Med. Rep.* 1821.

Cryptodibranchiata octocera *Blainv. Dict. Sci. Nat.* xxxii. 1824; *Menke, Syn.* ed. 2. 1830.

Cephalopoda octopodæ *Menke, Syn.* 1. 1828.

C. octopoda Gravenhorst, Thier. 1845.

Octopodidæ *Gray, Proc. Zool. Soc.* 1847, 204.; *Cantr. Malac. Médit.* 13. 1841.

C. octopia and argonautea Rafin. Anal. Nat. 140. 1815.

C. octobrachides Blainv.

C. octoceres Blainv.

Synopsis of Families.

- I. *OCTOPIDÆ*. Arms subulate. Mantle supported by fleshy bands. No cephalic aquiferous apertures.
- II. *PHILONEXIDÆ*. Arms subulate. Mantle supported by two buttons at the base of the siphuncle, fitting into grooves on the mantle.
- III. *OCYTHOIDÆ*. Arms subulate, two upper palmate. Mantle supported by two buttons fitting into grooves on the base of the siphuncle.

FAM. I. OCTOPIDÆ.

Body united to the head in front by a medial fleshy band.

Head without any aquiferous opening. Arms conical, tapering, with short sessile cups. No external nor internal medial shell.

Living near the shores amongst rocks.

Acochlides Latr. *Fam. Nat.* 168. 1828.

Octopidæ D'Orb. *Moll. Viv. et Fos.* i. 159. 164. 1845.

Octopodina Gray, *Proc. Zool. Soc.* 1847, 205.

Synopsis of the Genera.

1. OCTOPUS. Arms with two rows of cups. Body round, without fins. No aquiferous Cells between the bases of the arms.
2. CISTOPUS. Arms with two rows of cups. Body round, without fins. Distinct aquiferous Cells between the bases of the arms.
3. PINNOTOPUS. Arms with two rows of cups. Body with fins.
4. ELEDONE. Arms with one row of cups; without beards, and united by a short web. Body round.
5. CIRROTEUTHIS. Arms with one row of cups, bearded, and united by a broad web. Body finned.

A. *Arms with two Rows of Cups.*

1. OCTOPUS.

Body small, round, without any lateral fins, often cirrose. Cirri often nearly disappearing in repose, and when preserved in spirits.—*Head* with two small internal cartilages, one on each side of the beak; in the direction of the body (not oblique), narrower than the body. Eyes small, lateral, covered by the continuation of the surrounding skin, and often by one or two transparent eyelids. Beak very much compressed. External ear slightly marked above the cervical band. No aquiferous cells between the bases of the arms.—*Arms* unequal, elongate, united at the base by a web, which is wider beneath. Cups sessile, two-rowed, flat.—*Siphuncle* elongate, conical, slender, without any superior bands, or valve.—Living on rocks on the coast, very agile, eating crustacea, and changing their colour rapidly. Egg transparent, in bunches attached to *Alga*.

Πολυπους Aristoteles.

Polypus Plinius, Belon, Rodeletius.

Sepia sp. *Linnaeus, Gmelin, 1797.*

Octopus Cuvier, Règ. Anim. ii. 1817; Lamarck, 1799; Blainville, Malac. 1825; D'Orb. Moll. Viv. et Fos. i. 163. t. 1.

Polypus Leach, Zool. Misc. 1817.

The species are generally uniformly coloured or mottled. *O. horridus* n. 12. and *O. lunulatus* n. 16. are marked with distinct spots. *O. membranaceus* n. 22. and *O. ocellatus* n. 26. have a large eyed spot between the bases of the lateral arms.

M. D'Orbigny divides the species thus :—

a. Upper Arms the longest.—*O. Cuvieri, O. indicus, O. breviceps*

b. Lateral Arms the longest.—*O. vulgaris, O. tuberculatus, O. brevitentaculatus, O. superciliosus, O. tetracirrhus, O. membranaceus.*

c. Lower Arms the longest.—*O. rugosus, O. aculeatus, O. lunulatus, O. Fontainianus, O. tchuelchus, O. horridus, O. aranea.*

d. Doubtful Species.—*O. venustus, O. didynamus, O. Peronii, O. granosus, O. sinensis, O. tetradynamus, O. Boscii, O. pilosus, O. heteropodus, O. areolatus, O. frayedus, O. cærulescens, O. Tang Siao.*

e. Apocryphal Species.—*O. colossus.*

Synopsis of the Sections of the Genus.

§ The Cups of the Arms subequal, regular.

* The lower Cups far apart, in one series.

† Body smooth, bearded.

†† Body smooth, not bearded.

††† Back slightly granular.

†††† Back granular, rough.

** The lower Cups rather crowded.

† Body smooth, not bearded.

†† Body bearded.

††† Body minutely granular.

†††† Body granular, rough.

2 § The Cups of the dorsal Pair of Arms largest.

3 § The seventh to the twentieth Cups of the lateral (second and third) Pairs of Arms much larger than the rest.

4 § Cups ending in a Point, not clawed.

5 § Species requiring further Examination.

6 § Apocryphal species.

§ *The Cups of the Arms equal, similar.*

* *The lower Cups far apart, one-rowed.*

† *Body smooth, bearded.*

1. OCTOPUS VULGARIS.

Body small, oval, warty, cirrose; dorsal beards placed in a rhomb. Head warty; ocular beards three. Arms very large, elongate, unequal, the order of their length being 3, 2, 4, 1. Cups far apart, large, near the mouth one-rowed. Web large.—Reddish, whitish beneath.

Πολυπους *Aristoteles*, lib. iv. cap. i.; *Camus*, p. 177.; *Schneid.* ii. p. 130. 15.

Polypus *Salvianus de Aquatil.* 160.; *Gesner de Aquatil.* lib. iv. 870.

Polypus marinus, seu Octopus Karakatiza *Kölreuter*, *Nov. Comm. Acad. Petrop.* vii. 321. t. 11. f. 1, 2.

Polypus octopodia *Leach*, *Journ. de Phys.* lxxxvi. 394.; *Savigny*, *Desc. de l'Egypt. Hist. Nat.* ii. t. 1. f. 1.

Octopodia *Hasselquist*, *Acta Upsal.* 33. 1750.

Octopus vulgaris *Lamck.* *Mém. de la Soc. d'Hist. Nat. de Paris*, i. 18., *Hist. An. sans Vert.* 2nd édit. vii. 657. n. 1.; *Carus*, *Icon. Sep.* in *Nov. Act. Acad. Nat. Cur.* xii. 1. part. xxxi. 319.; *D'Orbigny*, *Tab. des Céph.* 52. p. 1.; *Blainville*, *Dict. des Sci. Nat.* xliii. 188.; *Risso*, *Hist. Nat. del Eur. Mer.* iv. 3. p. 2.; *Blainville*, *Faun. Franç. Moll.* 5. t. 1. f. 1. ?; *Payradeau*, *Catal.* 172. n. 350. ?; *Audouin*, *Expl. des Planch. de Sav.* texte i. 9. in 8vo p. 22.; *Delle Chiaje*, *Mem.* iv. 40. and 55. t. 56. f. 13.; *Wagner*, *Zeitschr. für die Org. Phys.* ii. 22.; *Bull. Univ. des Sc. Nat.* xix. 387.; *Sangiovani*, *Ann. des Sc. Nat.* xvi. 321.; *Philippi*, *Enum. Moll. Sic.* 240. n. 1.; *Rang*, *Mag. de Zool.* 62. ?; *Règne An. de Cuv. Ill.* t. 1.; *D'Orbigny et Férussac*, *Mon. des Céph. Acét. Poulpes*, t. 2, 3. 3 bis, 8. 11, 12, 13, 14, 15, 29. p. 27.; *D'Orbigny*, *Moll. des Canaries*, 14. n. 1., *Moll. des Antilles*, 11. t. 1., *Moll. Viv. et Fos.* i. 168. n. 1. t. 1. f. 7—9.; *Potiez et Michaud*, *Gall. des Moll. de Douai*, i. 6. n. 1.; *Bouch.* *Chant. Cat. des Moll. Mar.* 69. n. 122.

Sepia Octopus *Bosc*, *Buff. de Deterville*, *Vers.* i. 47.

Poulpe commun *Montfort*, *Buff. de Sonnini Moll.* ii. 103. t. 22. 24. ? and 113. t. 23, 24, 25. ?; *Shaw*, *Natur. Miscell.* xviii. 780.

Poulpe fraisé *Montfort*, *Buff. de Sonnini*, iii. 5. t. 27. 28.

Le Poulpe *Cuvier*, *Mém. sur les Céph.* t. 1—4.

Octopus appendiculatus *Blainville*, *Dict. des Sc. Nat.* xliiii. 188.

Octopus Salutii *Verany*, *Mem. del Acad. Torino*, i. t. 3.

Octopus unicolor *Delle Chiaje, D'Orb. et Féruss. Mém. des Céph. Acét. 73.*

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

a. Yarmouth. Adult. In spirits.

†† *Body smooth, not bearded.*

2. OCTOPUS ÆGINA.

Body oblong, elongated, smooth, marbled, not bearded. Nape, eyes, and back of head smooth. Eyes very prominent. Arms rather elongate; proportionate length, 4, 3, 2, 1. Web short, rather wider below, smooth above. Cups rather large and rather far apart, equal; the five or six lower ones far apart, and in a single series.

Hab. ———.

a. ———? In spirits ———.

3. OCTOPUS ARANEA.

Body oblong, short, smooth. Head short, narrow, very smooth; ocular beards one, posterior. Arms much elongated, smooth, slender very unequal; order of their length, 4, 3, 2, 1. Cups small, close, numerous; about 180 on the longest arms; the four nearest the mouth in a single line. Web short.—In spirit blackish, colouring dots very small.

Octopus aranea D'Orb. Poulpes, t. 5. 1825; D'Orb. et Féruss. Mém. des Céph. Acét. 57., Poulpes, t. 5.; D'Orb. Moll. Viv. et Fos. i. 184. p. 23.

Octopus filamentosus Blainv. Dict. des Sc. Nat. xliii. 188. 1826.

Hab. Isle of France.

††† *Back slightly granular.*

4. OCTOPUS GERYONEA.

Body (in spirits) marbled, smooth. Head and base of the arms very minutely granular. Eyes with one fleshy tubercle, and one behind the eye; upper eyelid rugose. Arms moderate, very thick at the base; proportionate length, 3, 4, 2, 1. Web broad, upper surface finely granulated. Cups large, subequal; the three or four lowest rather distant, and one-rowed.

Hab. Coast of Brazils.

a. Bahia. In spirits.

5. OCTOPUS HARDWICKEI.

Body roundish, oblong. Middle of the back, back of the head, and the eyelids warty. Ocular tentacles none; eyelid smooth. Arms moderate, rather slender; proportionate length, 4, 3, 2, 1. Cups rather large; the five or six lowest rather far apart, one-rowed. Web rather broad, quite smooth above.

Octopus Hardwickei Gray, *Brit. Mus.* 1826.

Hab. Indian Ocean.

a, b. Singapore? In spirits. Captain Hay's Collection.

††† *Body granular.*

6. OCTOPUS RUGOSUS.

Body oval, purse-shaped, large, with a deep groove above. Head and arms and upper part of body covered with roundish tubercles, not bearded. Head short, warty; ocular beard one, elongated. Arms short, thick, conical; the order of the length is 4, 3, 2, 1. Cups large, of upper part of arm rather smaller, lowest one-rowed. Web short.—When alive, violet-brown, white beneath: side of the arms netted with brown lines.

Polypus mas *Seba, Thes.* iii. t. 2. f. 2, 3?, 1758.

Octopus Barker, *Phil. Trans.* l. 777. t. 29. f. 1—4.; *Bruguère, Encyc. Méth.* t. 76. f. 1, 2.; *Shaw, Miscell.* x. 359.

Le Poulpe granuleux *Montfort, Buff. de Sonnini Moll.* iii. 30. t. 29.

Le Poulpe Américain de Barker *Montfort, Buff. de Sonn.* iii. 38. t. 30. 1802.

Sepia rugosa *Bosc, Act. de la Soc. d'Hist. Nat.* t. 5. f. 1, 2. 1792.

Sepia granulosa *Bosc, Buff. de Deterville Vers.* i. 47. 1802.

Octopus granulatus *Lamarck, Mém. de la Soc. d'Hist. Nat. de Paris,* i. 20. p. 2. 1799; *Hist. An. s. Vert.* vii. 658.; *Férussac,*

D'Orb. Tab. des Céphal. 53. n. 2.; *Blainv. Dict. des Sc. Nat.* xliii. 185.; *Philippi, Enum. Sicil.* 241. n. 3.

Octopus Barkerii *Férussac, D'Orb. Tab. des Céph.* 54. n. 3. 1826.

Octopus americanus *Blainv. Dict. des Sc. Nat.* xliii. 189. 1826.

Octopus rugosus *Blainv. Dict. Sc. Nat.* xliii. 185. 1826; *D'Orbigny et Férussac, Mém. des Céphal. Acét.* 45., *Poulpes,* t. 6. p. 23.; *D'Orbigny, Moll. des Antilles,* i. 18., *Moll. Viv. et Fos.* i. 171. n. 3.

Hab. Atlantic Ocean, Indian Ocean.

a. Valparaiso. In spirits. Mr. Bridges's Collection. The fourth, or lower, pair of arms rather shorter than the third pair.

** *Lower Cups crowded.*

† *Body smooth, not bearded.*

7. OCTOPUS FAVONIA.

Body (in spirits) oblong, smooth, without any beards. Eyes without beards. Arms moderate, conical; relative length, 3, 2, 1, 4. Webs moderate, with hard transparent granulations above, especially between the dorsal arms. Cups similar, subequal, large; the two or three lowest one-rowed.

O. Indicus *Gray, Brit. Mus.* 1830; not D'Orb.

Hab. Indian Ocean.

a. Singapore. In spirits. Presented by General Hardwicke.

8. OCTOPUS EUDORA.

Body smooth. Ocular tentacles none. Arms rather short, subquadrangular, not fringed on the outer edge; relative length, 2, 3, 4, 1; three upper pairs subequal. Web short, rather broader below. Cups moderate, subequal, regular; one or two lowest near mouth one-rowed.

Hab. Atlantic Ocean.

a, b. Jamaica. In spirits. Mr. Gosse's Collection.

9. OCTOPUS TCHUELCHUS.

Body round, short, smooth. Head smooth. Arms elongated, compressed, nearly equal; the order of their length, 4, 1, 3, 2. Cups about a hundred on the longest arms. Web thin. Siphuncle elongate, narrow. — When alive blackish brown, whitish beneath.

Octopus Tchuelchus D'Orb. Voy. dans l'Amér. MÉR. v., Moll. 27. t. 1. f. 6, 7. 1835; *D'Orb. et Féruss. Mém. des Céph. Acétab.* 55., *Poulpes*, t. 17., *Moll. Viv. et Fos.* i. 172. n. 4.

Hab. Atlantic Ocean, Patagonia. *D'Orb.*

10. OCTOPUS CASSIOPEA.

Body (in spirits) smooth, oblong, moderately long. Ocular beard one, conical, medial, posterior. Arms moderate, rather thick at the base; proportionate length, 2, 3, 4, 1. Web short, rather broader beneath, smooth above. Cups moderate, subequal; of the third pair of arms rather the largest.

Hab. Mediterranean.

a. Marseilles. In spirits. Presented by J. Ritchie, Esq.

11. OCTOPUS BREVIPES.

Body oblong, large, smooth. Head short, broad. Eyes prominent, without eyelids. Arms conical, very short, nearly equal, about one third the length of the animal; upper pair rather longest. — Bluish, with red spots. Eyes silvery, with a blue spot above them. Perhaps young. *D'Orb.*

Octopus brevipes D'Orbigny, Voy. dans l'Amér. Mér. Moll. 22. t. 1. f. 1—3.; D'Orbigny et Férussac, Mon. des Céph. Acét. 61., Poulpes, t. 17. f. 1.; D'Orbigny, Moll. Viv. et Fos. i. 174. n. 6.

Hab. Atlantic Ocean.

†† *Body bearded.*

12. OCTOPUS HORRIDUS.

Body short, smooth, round, with numerous regularly placed diverging beards. Head short, with diverging beards round the eyes. Arms short, thick, five or six bearded externally, nearly equal, conico-subulate; order of length, 4, 3, 2, 1. Cups rather large, subequal; one or two lowest, especially of the second pair of dorsal arms, one-rowed. Web moderate, extending up the outer edge of the arms. — Bluish? when alive, with large regular round white spots (seen also when in spirits).

Octopus horridus D'Orbigny, Sav. Descr. de l'Égypte, Atlas, Céphal. t. 1. f. 2.; D'Orbigny, Tab. des Céph. 54. n. 4.; Audouin, Explicat. des Planches de Sav. 3. p. 2.; Ehrenberg, Cephalopoda, Octopus, n. 2.; D'Orbigny et Férussac, Mon. des Céph. Acét. 51., Poulpes, t. 7. f. 3.; D'Orbigny, Moll. Viv. et Fos. i. 178. n. 15.

O. fimbriatus Rüppell, MS. (in Brit. Mus.); D'Orb. et Férussac, Céph. Acét. 64., Moll. Viv. et Fos. i. 179. n. 16.

O. Argus Krauss, Sud-Afr. Moll. 132. t. 6. f. 28.

Hab. Red Sea.

a. Red Sea. In spirits. From Dr. Edward Rüppell's Collection, as "*O. fimbriatus Rüppell.*"

13. OCTOPUS ACULEATUS.

Body short, rounded, small, covered near the head with numerous beards. Head longly bearded; beards crowded, forming a circle round the eyes. Arms thick, elongated, bearded externally, unequal; order of length, 4, 2, 3, 1. Cups very large and very numerous. Web short. — When alive, whitish.

Octopus aculeatus D'Orb. Tab. des Céph. Poulpes, t. 7. 1823; D'Orb. et Férussac, Mon. des Céph. Acét. 53., Poulpes, t. 7, 8. 23.; D'Orb. Moll. Viv. et Fos. i. 183. n. 21.

Octopus niveus *Féruss. D'Orb. Tab. Méthod. des Céph.* 54. 1826;
Lesson, Voy. de la Coquille, Zool. ii. part 1. 239. t. 1. f. 1. 1 bis.
Hab. Manilla and Borapora.

††† *Body minutely granular.*

14. OCTOPUS SAPHENIA.

Body and arms minutely granular. Ocular beards none. Arms moderate; comparative length, 2, 3, 4, 1; three upper pairs subequal. Web short, granular above. Cups subequal.

Hab. Pacific Ocean.

a. East coast of South America. In spirits. Presented by the Rev. W. Hennah.

15. OCTOPUS BERENICE.

Body (in spirits) oblong. Head and base of the arms and back of the body minutely granular, and with regularly disposed roundish groups of small granules. Eyes with four or five granulated tubercles on the dorsal edges, forming a fringe. Arms moderate; relative length, 2, 3, 4, 1. Cups very large, subequal. Web moderate, rather wider below.

Hab. ———

a. ———? In spirits. Presented by Mr. John Leadbeater, 1805.

16. OCTOPUS LUNULATUS.

Body short, covered with scattered tubercles, and about twenty rounded prominent circles with concave centres, in six series. Head short, thick, tubercular, with one medial and two lateral convex circles, with a tubercle in the centre. Arms short, conical, nearly equal; order of their length, 4, 3, 2, 1; with a circle between the bases of the arms. Cups about fifty. Web very short. — When alive, white, varied with blue circular spots paler in the centre.

Octopus lunulatus *Quoy & Gaimard, Zool. du Voy. de l'Ast.* ii. 86. t. 6. f. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 59. *Poulpes*, t. 10. 26.; *D'Orbigny, Moll. Viv. et Fos.* i. 182. n. 20.

Hab. New Zealand.

17. OCTOPUS TETRACIRRHUS.

Body oval, slightly granular, with a posterior beard. Ocular cirrhi two, anterior and posterior. Arms short, rather unequal in length; in order, 2, 3, 1, 4. Web very broad. Cups in two lines; the first three round the mouth in one line. — Yellowish when alive.

Octopus tetracirrhus Delle Chiaje Moll. MS. ; D'Orbigny et Fé-russac, Mon. des Céph. Acét. 36. n. 5., Poulpes, t. 22. ; D'Orbigny, Moll. Viv. et Fos. i. 175. n. 8.

Hab. Mediterranean.

18. OCTOPUS SUPERCILIOSUS.

Body oval, acuminated behind, slightly granular, longly bearded ; one beard being posterior, seven or eight on the back, and some in two lines on the sides, forming a kind of crest which is sometimes indistinct. Head very distinct, swollen, smooth in the middle, with some tubercles over the eyes. Arms elongated, angular, conical, nearly equal ; order of their length, 2, 4, 3, 1. Cups far apart, large ; beak without lateral wings. — When alive, white.

Octopus superciliosus Quoy & Gaim. Zool. du Voy. de l'Ast. ii. 28. t. 6. f. 4. 1832 ; D'Orbigny et Fé-russac, Mon. des Céph. Acét. 41., Poulpes, t. 10. 28. ; D'Orbigny, Moll. Viv. et Fos. i. 180. n. 18.

Hab. Bass's Straits, Australia.

††† Body granular, rough.

19. OCTOPUS BOSCHII.

Body roundish ; back of head and arms closely acutely granulated ; back with a few regularly placed larger tubercles. Eyes with three conical beards. Arms elongate, granulated, without any beards externally ; the upper pair with a very wide dorsal membrane, the other with a narrow one arising from the outer side. Cups in two regular marginal series. Web moderate, granulated above.

Sepia rugosa Péron, MS.

Octopus Boschii LeSueur, Journ. Acad. Nat. Sci. Philad. ii. 101. 1822. ; D'Orb. et Fé-russac, Mon. des Céph. Acét. 68. ; D'Orbigny, Moll. Viv. et Fos. i. 186. n. 26.

Octopus variolatus Péron, Blainv. Dict. Sc. Nat. xliii. 186. 1826.

Hab. New Holland.

a. New Holland. ? In spirits. Presented by J. B. Jukes, Esq.

20. OCTOPUS TUBERCULATUS.

Body short, round, covered with irregular papillary granular warts ; back with four conical, acute, diverging beards. Head short, warty ; ocular beards two, the hinder elongated. Arms granular, cirrose, short, unequal ; the order in length of the arms is

2, 3, 4, 1, or 3, 2, 4, 1. Cups very large, the first three in one line. Web rather wide, granulated above, extending up the outer side of the arms, especially of the second and third pairs. —Violet brown, beneath white.

Octopus tuberculatus Blainville, *Dict. des Sc. Nat.* 1826, p. 6. t. 1. f. 3.; *Faun. Franç. Moll.* 8. t. 1. f. 3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 38., *Poulpes*, t. 21. 23. p. 38.; *D'Orbigny, Moll. des Antilles*, 15. n. 2., *Moll. Viv. et Fos.* i. 170. t. 1.

Octopus ruber Rafinesque, *Précis des Découv. Somiol.* 28. n. 70.?

Hab. Atlantic Ocean, Mediterranean.

a. Pacific Ocean. In spirits. ————— ?

21. OCTOPUS POLYZENIA.

Body oblong, rounded, short. Head, back of the dorsal arms, and back of body granular, and with a few scattered warts or short beards. Arms slender, outer edge of ventral arms smooth; comparative length, 4, 3, 2, 1. Web short, rather wider below. Cups large, subequal.

Hab. Australian seas.

a. Port Essington. In spirits. Presented by the Earl of Derby.

22. OCTOPUS MEMBRANACEUS.

Body obtuse, granular, provided with a lateral membrane. Head large; ocular beards three, elongate, granular above and below. Arms short, unequal, quadrangular; order of their length, 2, 3, 4, 1. Cups large. Web short, granular. —When alive, white, with a black eyed spot between the bases of the second and third pairs of arms.

Octopus membranaceus Quoy & Gaim. *Zool. de Voy. de l'Ast.* ii. 89. t. 6. f. 5.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 43. *Poulpes*, t. 10. 28.; *D'Orbigny, Moll. Viv. et Fos.* i. 181. n. 19.

Hab. New Guinea.

2 § *Cups of the dorsal Pair of Arms larger than the rest.*

23. OCTOPUS CUVIERI.

Body oblong, enlarged below, warty above, and with a medial posterior beard; aperture of moderate size. Ocular beards indistinct. Arms very long, slender, unequal; order of length, 1, 2, 3, 4; first and third much longest. Web broad. Cups elevated. *some on the two upper pair of arms larger.*

Octopus Cuvieri D'Orb. *Tab. des Céph. Poulpes*, t. 4. 1835, *Moll. des Canaries*, 16. n. 2., *Moll. Viv. et Fos.* i. 173. n. 5.; D'Orb. et Féruss. *Mon. des Céph. Acét. Poulpes*, t. 1. 4. 24. 27. p. 18.; Guérin, *Icon. de Règ. Anim. Moll.* t. 1. f. 1.

Octopus Lechenaultii D'Orb. *Tab. des Céph. Poulpes*, t. 1. 1825.

Octopus macropus Risso, *Hist. Nat. del Eur. Merid.* iv. 3. n. 3. 1826; *Delle Chiaje, Mem.* iv. 40. 56. p. 2. t. 54. p. 26. 1828; *Blainv. Faun. Franç. Moll.* 6. n. 2.; *Wagner, Zeitschr. für die Organ. physik.* ii. 225.; *Bullet. des Sc. Nat.* xix. 387. n. 1.; *Rang, Mag. de Zool.* 61. t. 90.; *Philippi, Enum. Moll. Sic.* 240. n. 2.

Octopus macropodus Sangiovani, *Ann. Sc. Nat.* xvi. 319. 1829; *Bullet. des Sc. Nat.* xx. 338.

Octopus longimanus Féruss. *MS.*

Hab. Atlantic Ocean, Mediterranean, Indian Ocean, Red Sea.

24. OCTOPUS MEDORIA.

Body, head, and base of arms minutely granular, with scattered rather larger rounded tubercles. Body oblong, rather acute behind. Eyes large; ocular tentacles none. Arms elongate, slender; comparative length, 1, 3, 4, 2. Cups rather small, regular, equal, of the dorsal pair rather largest. Web moderate, scarcely wider beneath, smooth above.

Hab. ——— ?

a. ——— ? In spirits. The left dorsal arm not fully developed, and with small cups like the other arms. Somewhat like *O. Cuvieri* Féruss. *Céphal.* t. 4.

3 § *A Few of the Cups near the Base of the second and third Pairs of Arms much larger than the rest.*

25. OCTOPUS FONTANIANUS.

Body large, oval, slightly warty; aperture broad. Head narrow, nearly smooth; ocular beards one, posterior. Arms moderate size, angular, subequal; the inferior pair longest. Cups close together, subequal, gradually diminishing in size; the seventh to the tenth cups of the second and third pairs of arms much largest. Web very broad.—When alive, violet, deeper above.

Sepia Octopus Molina, Hist. Nat. du Chili, p. 173. ?

Octopus Fontanianus D'Orbigny, *Voy. dans l'Amér. Mérid. Moll.* 28. t. 2. f. 5.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 49., *Poulpes*, t. 28, 29.; *D'Orbigny, Moll. Viv. et Fos.* i. 179. n. 17.

Hab. Pacific Ocean, coasts of Chili and Peru.

26. OCTOPUS OCELLATUS.

Body roundish, oblong; back of head and outside of the arms regularly granular; eyes and head without any cirri; beneath smoothish, sides rounded. Arms moderate, unequal. The fourth or fifth cups of the second and third pairs of arms much larger than the rest. — A large black eyed spot between the bases of the second and third pairs of arms.

Octopus ocellatus *D'Orb. & Férussac, Mém. Céph. Acét. Poulpes*, t. 9. upper figure, from Chinese drawing.

Hab. Chinese seas.

a. China. In spirits. Presented by John Reeves, Esq.

27. OCTOPUS CEPHEA.

Body (in spirits) smooth, oblong, rather elongate. Head smooth; ocular beard small, surrounded by other smaller beards. Arms thick, moderately long; proportionate length, 3, 2, 4, 1. Web broad, broader in front, upper surface quite smooth. Cups very large; the tenth to the twentieth cups of the second and third pairs of arms larger, equal; the four or five lowest of all the arms one-rowed.

Hab. —————.

a. —————. In spirits. —————

Very like *O. vulgaris*, but differs in the size of the cups on the lateral arms.

28. OCTOPUS CYANEA.

Body (in spirits) ovate, above rather granular, beneath smooth. Ocular tubercle rugose, superior. Arms rather elongate, conical; order of length, 2, 4, 3, 1. Cups large; the tenth to the twentieth of the second and third pairs of arms larger, equal-sized; the lowest, especially of the ventral arms, one-rowed. Web broad, minutely granular above, especially between the upper arms.

Hab. Australian seas.

a. Coast of New Holland. In spirits. Presented by J. B. Jukes, Esq.

b. ? ————— ? In spirits ?

4 § "Cups ending in a Point, not clawed."

29. OCTOPUS CÆRULESCENS.

Body short. Arms much longer than the body. Cups ending in a point, but not clawed. — Blue, varied with very small close purple dots. Cups whitish. *Blainv.*

Octopus cærulescens Péron, *Blainv. Dict. des Sc. Nat.* xlii. 129. 1826; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 65.; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 24.

Hab. New Holland, Island of Dorre. Péron.

The form of the cups, if correct, would indicate a different family.

5 § *Species requiring further Examination.*

30. OCTOPUS LONGIPES.

Body elongated, oval, glabrous, grey spotted with black. Arms very long, slender. Cups large, rather prominent.

Octopus longipes Leach, *Zool. Miscell.* iii. 137. 1817; *Férussac, D'Orb. Tab. des Céph. Ann. Sc. Nat.* 54. n. 6.; *Blainville, Dict. des Sc. Nat.* xliii. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67., *Moll. Viv. et Fos.* i. 187. n. 31.

Polypus longipes Leach, *Journ. de Phys.* lxxxvi. 394. 1818.

Hab. —————? Mus. Oxford. Probably *O. Cuvieri* or *O. aranea* D'Orbigny.

31. OCTOPUS BREVITENTACULATUS.

Body (in spirits) short, globular, smooth, not tubercled. Arms thick, cirrous, conical, short; proportion of length, 2, 3, 4, 1; the longest only three times as long as the head. Cups large.

Octopus brevitentaculatus *Blainv. Dict. Sc. Nat.* xliii. 187.; *D'Orbigny, Mon. des Céph. Acét.* 36. n. 4., *Moll. Viv. et Fos.* i. 186. n. 30.

O. vulgaris contracted *D'Orb. Moll. Viv. et Fos.* i. 187.

Hab. ————. Mus. Paris, three specimens.

32. OCTOPUS VENUSTUS.

Body oval, purse-formed, smooth; aperture large. Head short, rather broad; eyes prominent. Arms rather short, nearly equal. Cups small. *Rang.*

Octopus venustus *Rang, Moll. MSS.; D'Orbigny et Férussac, Mém. des Céph. Acét.* 64., *Poulpes*, t. 21. f. 8, 9. 1838; *D'Orbigny, Moll. Viv. et Fos.* i. 175. n. 7.

Hab. Atlantic Ocean, Goree.

"Perhaps from a young specimen." *D'Orbigny.*

33. OCTOPUS GRANOSUS.

Body small, globular, rather transverse, finely granulated above and below. Arms eight times as long as the body; proportionate length, 4, 3, 2, 1. Web slight.

Octopus granosus *Blainv. Dict. des Sc. Nat.* xliii. 186.; *Faune Française, Moll.* 7. t. 1, 2.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 63.; *D'Orbigny, Moll. Viv. et Fos.* i. 176. n. 9.

Hab. Mediterranean, Sicily. *Blainville.*

34. OCTOPUS PILOSUS.

Body round, grey, ashy-brown, provided above with reddish hairs disposed in bundles. Arms very short, thick. Cups large. Eyes very large and very prominent.

Octopus pilosus *Risso, Hist. Nat. del Eur. Merid.* iv. 4. n. 5. 1826; *Blainville, Faun. Franç. Moll.* 7. n. 3.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 67.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 10.

Hab. Mediterranean, Nice.—*Risso.*

A very doubtful species. *D'Orb.*

35. OCTOPUS FRAYEDUS.

Arms equal, six times as long as the body, without any cups at the end.

Octopus frayedus *Rafinesque, Précis de Découv. Somiol.* 1814; *Blainville, Dict. des Sc. Nat.* 1826, p. 189.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* p. 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 11.

Hab. Mediterranean. *Rafinesque.*

36. OCTOPUS DIDYNAMUS.

Arms unequal, the upper pair longest, nearly five times as long as the body.

Octopus didynamus *Rafinesque, Précis de Découv. Somiol.*; *Blainville, Dict. d'Hist. Nat.* xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 12.

Hab. Mediterranean. *Rafinesque.*

37. OCTOPUS TETRADYNAMUS.

Arms unequal, alternately longest, about five times as long as the body.—*Grey.*

Octopus tetradymanus Rafinesque, Précis des Découv. Somiol. 1814; *Blainville, Dict. des Sc. Nat.* xliii. 190.; *D'Orbigny et Férussac. Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 177. n. 13.

Hab. Mediterranean.

38. OCTOPUS HETEROPODUS.

Arms unequal, very short, scarcely as long as the body; the upper pair longest. Back reddish.

Octopus heteropodus Rafinesque, Précis de Découv. Somiol.; Blainville, Dict. des Sc. Nat. xliii. 190.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 71.; *D'Orbigny, Moll. Viv. et Fos.* i. 178. n. 14.

Hab. Mediterranean.

39. OCTOPUS AREOLATUS.

Like *O. Cuvieri*; but the body areolated on the surface, with a dark spot in each areole.

Octopus areolatus De Haan, MSS. Lettre de 1835; D'Orb. et Férussac, Mon. des Céph. Acét. 65.; *D'Orb. Moll. Viv. et Fos.* i. 186. n. 27.

Hab. Coast of Japan. *De Haan.*

40. OCTOPUS PERONII.

Body rugose. Arms thicker and shorter than those of *O. variolatus*, and with larger and fewer cups. Brownish green.

Sepia Octopoda Péron, MSS.

Sepia Peronii LeSueur, Journ. Acad. Nat. Sc. Philad. ii. 101. 1822.

Octopus Peronii Féruss. D'Orb. Tab. Class. des Céph. 54. n. 7. 1823; *D'Orbigny, Moll. Viv. et Fos.* i. 185. n. 25.

Octopus pustulosus Péron, Blainv. Dict. Sc. Nat. xliii. 186. 1826; *D'Orb. et Féruss. Mon. des Céph. Acét.* 66.

Hab. New Holland, Isle Dorre.

41. OCTOPUS FANG SIAO.

Wangtchao-ju Encyclopéd. Japonnaise, lib. 51; D'Orbigny.

Octopus Fang-siao D'Orb. et Féruss. Mon. des Céph. Acét. 70. *D'Orbigny, Moll. Viv. et Fos.* i. 186. n. 28.

Hab. Coast of Japan.

42. OCTOPUS SINENSIS.

A large species.

Octopus sinensis D'Orb. et Féruss. *Mon. des Céph. Acét.* 68., *Poulpes*, t. 9. lower figure, *Moll. Viv. et Fos.* i. 186. n. 29.; from *Récueil de Poissons, de Moll. et Crust. grav. et enlum. au Japon, avec les noms Chinois et Japonnais*, folios 36 and 37.; *Encyclopéd. Japonnaise*, liv. 51. fol. 17. verso, *Pen-thsao-kang-mo*, 1593, art. *Tchang-iu*.

Hab. Coast of Japan.

43. OCTOPUS CARENA.

Octopus Carena Verany, *Mem. Acad. Torino*, i. t. 2., *Cat. Anim. Invert. Genova*, 17.

Hab. Genoa.

44. OCTOPUS KOELLIKERI.

Body short, oblong. Arms subulate, slightly webbed at the base; two lower pairs subequal, very short; upper pair rather longer than the second pair.

Octopus Koellikeri Verany, *Cephal. ex Sicil.* ii. t. 1. f. 1. not described.

Hab. Sicily. Perhaps a *Philonexis*.

45. OCTOPUS COCCO.

Body conical. Arms moderate, subequal. Superocular beard one, small.

Octopus cocco Verany, *Congresso di Napoli, Col. Anim. Invert. Genova*, 17. 29. t. 4. f. 1. 1846.

Hab. Genoa.

6 § Apocryphal Species.

46. OCTOPUS COLOSSUS.

Poulpe colossal Montfort, *Buff. de Sonnini, Mollusques*, ii. 256. t. 26.

Sepia gigas Oken, *Lehrb. des Zool.* 345. n. 7.; *D'Orbigny et Férussac, Mon. des Céph. Acét.* 70.; *D'Orb. Moll. Viv. et Fos.* i. 187.

Poulpe Kraken Montfort, *Buff. de Sonnini, Moll.* ii. 386.; *D'Orbigny, Moll. Viv. et Fos.* i. 188.

2. CISTOPUS.

Body small, round, without any lateral fins.—*Head* in the direction of the body. Eyes lateral, covered by the skin. External ear indistinct. A small aquiferous system, consisting of a bag with a small pore at the outer edge, situated between the bases of the arms.—*Arms* unequal, elongate, united at the base by a web wider beneath. Cups sessile, two-rowed, flat.—*Siphuncle* conical.—Living on rocky coasts.

Octopus sp. *Gray, B. M.; Rüpp. MSS.; D'Orb. Moll. Viv. et Fos. i. 183., Céphal. Acét. 24.*

1. CISTOPUS INDICUS.

Body smooth, pouch-shaped, not bearded. Arms rather elongated, unequal; order of their length, 1, 2, 3, 4; web very broad. Cups large; two or three near the base of the dorsal pair of arms largest.

Octopus indicus *Rüpp. MSS.; D'Orb. et Férussac, Mon. des Céph. Acét. 24., Poulpes, t. 25, 26. f. 1—4.; D'Orbigny, Moll. Viv. et Fos. i. 183. n. 22.*

Hab. Island of Celebes.

a. India. In spirits. Presented by General T. Hardwicke.

3. PINNOCTOPUS.

Body oblong, with broad, lateral, wing-like expansions, which extend in front, and enfold all the body.—*Head* indistinct, narrower than the body. Eyes lateral, dorsal.—*Arms* very long, with two rows of scarcely prominent cups, and with a broad web at the base.

Pinnoctopus *D'Orb. Moll. Viv. et Fos. i. 193. t. 2.*

Octopus sp. *Quoy & Gaim. Voy. Astrol. 1832.*

1. PINNOCTOPUS CORDIFORMIS.

Body orbicular, tubercular, winged. Arms long, nearly equal length, the lateral ones shortest. Eyes rather prominent.—Red-brown, arms with pale-blue lunules.

Octopus cordiformis *Quoy & Gaim. Zool. du Voy. Astrol. ii. 27. t. 6. f. 2.; D'Orb. et Féruss. Mon. de Céph. Acét. 62., Poulp. t. 10. f. 1.*

Pinnoctopus cordiformis *D'Orb. Moll. Viv. et Fos. i. 193. t. 2.*

Hab. New Zealand. Only known from M. Quoy's figures.

4. ELEDONE.

Body small, oblong, without fins, rounded behind. Aperture narrow. Ventral part of mantle united to the head by a central fleshy band; nuchal band broad.—*Head* straight, indistinct, narrower than the body. Eyes small, lateral, dorsal, prominent, covered by the continuation of the skin. Beak compressed. Ears slightly marked.—*Arms* long, tapering, webbed at the base. Cups sessile, rather cylindrical, in a single line.—*Siphuncle* elongate, conical, without superior bands or valve.—Emitting a musky smell, and living in rocky places.

Ἐλεδώνη *Aristot.*; Bolitænæ and Ozolis of the Ancients.

Eledone *Aldrovandus, De Moll.* cap. 3. 1606; *Leach, Zool. Misc.* 1817, iii. 137.; *Schweig. Natgsch* 758. 1820; *Rang, Man.* 87. 1829.

Eledon *Cuvier, Règne Anim.* 1817, ed. 2. 1830; *Desh. in Lamck. Hist.* xi. 234.; *Pot. et Mich. Zool.* i. 7. 1838; *Verany.*

Eledona *Risso, Eur. Merid.* iv. 2. 1826.

Polypus *Rondelet., Gesner; Owen, Trans. Zool. Soc.* 1838; *Oken, Isis,* 1838, 836.

Sepia sp. *Linnaeus.*

Octopus sp. *Lamarch.*

Ozaina *Plin.*

Heledone *Menke, Cat.* ed. 2. 1830.

Moschites *Schneider, Samml. Verm. Abhandl.* 1835. See *Féruss. Bul. Sci. Nat.* 1835-36.

Oziæna *Rafin. Anal. Nat.* 129. 1815; *Montfort.*

"Ozæma *Rafinesque.*"

Eledonæ (fam.) *Risso, Eur. Merid.* iv. 2. 1826.

* *Ocular Beards two. Central Arms equal.*

1. ELEDONE MOSCHATUS.

Body oblong, acuminated behind, smooth, when excited bearded, granular. Ocular cirri elongated, central. Arms long, slender, compressed, equal. Cups far apart.—*Colour* very variable, with three blackish spots in a horseshoe. Web edged with blue.

Ἐλεδώνη *Aristot.* lib. iv. cap. 1.; *Camus,* p. 117.; *Schneider,* ii. 130.

Ozaina *Plin. Hist. Nat.* lib. ix. cap. 30.

Eledona *Belon, De Aquatil.* 333., *La Nat. et Divers. de Pois.* 337.

Polypi tertia species *Rondelet. de Piscib.* lib. xvii. cap. 8. 516. cap. 9. (1st species) 417.

Polypus tertia species *Bossuet, De Aquat.* lib. iv. 740. 871.

Polypus femina *Seba, Mus.* 3. f. 2. 6. 4.

Poulpe musqué *Montfort*, iii. 50. t. 34. 1802; *Cuvier, Règne Anim.* iii. 12.

Eledona, B. Eledona, OROŪS, *Aldrovand. De Moll.* cap. 3. 42, 43.

Moschites *Schneider. Collect. de dir. Dissert.*

Poulpe d'Aldrovande *Montf. Sum. Moll.* iii. 55. t. 32. 1802.

Octopus moschatus *Lamck. Mém. Soc. Hist. Nat.* i. 22. n. 4. t. 2. 1799; *Hist. An. s. Fert.* vii. 658. n. 4.; *Blainville, Dict. Sci. Nat.* xliii. 190.; *Payson, Cat. Coq. Corée,* 172. n. 340.; *Sangiorgani, Ann. Sc. Nat.* xvi. 317.; *Blainville, Faun. Franç.* 2. n. 7.; *Philippi, Enum. Moll. Sic.* 241.; *Rang, Mag. de Zool.* 64. t. 91.

Sepia moschata *Bosc, Buff. de Deterr. Vers.* i. 48. 1802.

Ozæna moschata *Rafinesque, Précis de Découv. Somiol.* 29. n. 73. 1814.

Eledone Aldrovandi *Rafinesque, Précis de Découv. Somiol.* 29. n. 73. 1814.

Eledone moschata *Leach, Journ. de Phys.* lxxxvi. 293. 1817; *Cuvier, Règne An.* iii. t.; *D'Orb. et Féruss. Mon. Céph. Acté.* 72. t. 1. 1 bis. 3.; *Potiez et Michaud, Gal. de Douai,* i. 7. n. 1.; *D'Orb. Moll. Vir. et Fos.* i. 196. t. 3.

Eledon moschatus *Féruss. D'Orb. Tab. des Céph.* 55. n. 1.; *Delle Chiaje, Mem.* iv. 48. 56.

Eledon moschata *Ranzani, Mem. di Stor. Nat.* dec. 3. 151. 1819.

Eledona moschata *Risso, Hist. Nat. Eur. Merid.* iv. 2. 1826.

Octopus moschites *Carus, Nor. Act. Acad. Nat. Cur.* xii. 1st part. 319. t. 32. 1824.

Eledon Aldrovandi *Delle Chiaje, Mem.* iv. 43. 67. 1828, "imaginary," *D'Orb.*

Octopus leucoderma *Sangiorg. Ann. Sc. Nat.* xvi. 318. 1829.

Eledone Genei *Verany, Acad. Reale delle Sc.* i. 1838 (the young) *Congress de Torino, Cat. Anim. Invert. Genova,* 17. 29. n. 56. 1846; *Shaw, Nat. Miscell.* t. 359.; *Barbut, Genera Verm.* 75. t. 8. f. 1.

Hab. Mediterranean.

** *Ocular Beards none. Arms unequal.*

2. ELEDONE OCTOPODIA.

Body rounded, very minutely granular, dilated behind. No ocular cirrhi. Arms of moderate length, conico-subulate, granular, unequal; order of length, 1, 3, 2, 4. Cups close together. — Pale black, brown-spotted.

Sepia octopodia *Pennant, Brit. Zool.* iv. 53. t. 28. f. 44.

Sepia moschites *Herbst. Einleit. zur, &c.* 80. n. 5. t. 389.

Sepia cirrhosa *Bosc, Buff. de Deterr. Vers.* i. 47.

Poulpe cirrheux Montfort, *Buff. de Sonnin. Moll.* iii. 67. t. 33.
Octopus cirrhosus Lamck. *Mém. Soc. Hist. Nat. Paris*, i. 21.
 n. 3. t. 1. f. 2. a, b.; *Férussac, D'Orb. Tab. Méthod. Céph.* 56.
 n. 2.; *Blainville, Dict. Sc. Nat.* xlvii. 191.
Octopus ventricosus Grant, *Edin. New Phil. Journ.* 1827, p. 309.;
Bullet. (*Féruss.* xii. 397. 1827.)
Eledone cirrhosus D'Orb. et *Féruss. Mon. Céph. Acét. Eledons*,
 t. 2.; *D'Orb. Moll. Viv. et Fos.* i. 194.

hab. Coast of Britain and Europe.

23. a. Berwick on Tweed. In spirits. Presented by G. Johnston, M.D.

b. Dalmatia. In spirits. Purchased of Dr. Heckel.

5. CIRROTEUTHIS.

Body round. Fins oblong, transverse, dorsal. Aperture very small, inferior.—*Head* small; cervical band occupying three fourths of the circumference. Eyes small, lateral ventral, without eyelids.—*Arms* equal, conical, subulate, united together by a thin funnel-shaped web, which is immediately attached to the arms at the base (as high as the fifth cup) and at the tip, but in the middle is united to the back of the arm by a thin skin, forming a kind of pouch. Cups in a single row, alternating with fleshy beards.—*Siphuncle* moderately long.

Cirroteuthis Eschrich. *Nov. Act. Nat. Cur.* xviii. 625. (1836, 1838); *Desh. Lamck. Hist.* ed. 2. xi. 234. 1845.

Cirrhoteuthis Moller, *Ind. Moll. Groen.* 4.; *Koryer, Naturk. Tidsk.* iii. 98. iv. 77.; *D'Orb. Moll. Viv. et Fos.* i. 198. 1845; *Gray, Proc. Zool. Soc.* 1847, 205. n. 795. (not *Chirroteuthis* D'Orb.)

Sciadephorus Reinh. & *Prosch, Kong. Dansk. v. Selsh. Naturv.* xii. 1846.

Sciadephorus. 1847, misprint, see *Herrmann*, 442.

Bostrychoteuthis Agassiz, *Nomenclat.* 87.

1. CIRROTEUTHIS MULLERI.

Body smooth, oblong, three-lobed. Fins longer than broad, blunt, depressed. Eyes very small. Arms equal, quadrangular. Cups very small, oval, about thirty; beards between the cups filiform.—*Violet*.

Cirroteuthis Mulleri Eschrich. *Nov. Act. Phys. Med. Acad. Cæs. Leop. Nat. Cur.* xviii. part 2. 625. t. 46, 47, 48.; *Desh. Lamck. Hist.* xi. 234.

Cirrhoteuthis Mulleri D'Orbigny, *Moll. Viv. et Fos.* i. 198. t. 4.; *Moller, Ind. Moll. Groenl.* 4.

Sciadephorus Mulleri Reinh. & Prosch Kong. Dansk. v. *Selsk. Naturv.* xii. t. 1, 2. 1846.

Hab. Coast of Greenland.

FAM. II. PHILONEXIDÆ.

Body oblong. The ventral portion of the mantle free, supported by a button on to the lower part of the siphuncle, fitting in a transverse cavity in the inner surface of the mantle. Ventral opening very large, extending on the sides of the neck. Cervical band narrow.

Head moderate. Eyes large, prominent, without any beard. External ear without any crest, on the side of the neck behind the eyes, and above the cervical band. Aquatic pores two, four, or six; two on the head above, two anal below, or two on each side, and sometimes some small ones at the base of the head, which is enclosed in the mantle; the larger cephalic anal pore communicating with a large cavity placed under the head, and passing above the eyes; sometimes this cavity is separated into two by a medial line.

Arms elongate, tapering, not crested, simple at the end. Cuttle fleshly, pedunculated, very extensible, subcylindrical, in two rows, sometimes far apart.

Siphuncle broad, short, without any upper band or internal valve.

Shell none, neither internal nor external.

Pelagian, living on the high seas. Crepuscular or nocturnal, eating floating mollusca.

Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 199. 1845.

Philonexiana Gray, *Proc. Zool. Soc.* 1847.

Synopsis of Genera.

1. PHILONEXIS. Arms free.
2. TREMOCTOPUS. Arms, upper pair webbed.

1. PHILONEXIS.

Arms free, tapering, unequal.—Nocturnal. Above the eyes blue.

Philonexis *D'Orb. Céph. Acét.* 1839, *Moll. Cuba*, i. 7. 21. 1841.
Voy. Amér. Mérid. 1835, *Ann. Sci. Nat.* xvi. 1841.

Philonexis (pars) *D'Orb. Moll. Viv. et Fos.* i. 200. 1845; *Gray Proc. Zool. Soc.* 1847, 205. n. 797.

Philonexus *D'Orb. Gray, Syn. B. M.* 87. 98. 1842.
Octopus sp. *Blainv. Férussac.*

* *Two upper Pairs of Arms longest, free; lower very small.*

1. PHILONEXIS ATLANTICUS.

Body smooth, roundish, large. Head of moderate size, smooth. Eyes prominent, large, without eyelids. Water-bearing apertures two above. Arms slender, unequal; in order, 1, 2, 4, 3; not webbed, except at the base. Cups peduncled.—White, spotted with red.

Octopus (Philonexis) atlanticus *D'Orb. Voy. Amér. Mérid. Moll.* 19. t. 11. f. 1—4. 1835.

Philonexis atlanticus *D'Orb. Mon. Céph. Acét.* 98., *Poulpes*, t. 16. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 203. 1845.

P. Quoyianus, jun. ? *D'Orb.* l. c. 203.

Hab. Atlantic Ocean, under the tropics.

** *The upper Pair of Arms very long, free; rest short.*

2. PHILONEXIS EGLAIS.

Body ovate, large; skin thick, dilated, and covered all over with small rounded peduncled horny buttons which are divided into five or six equal regular lobes round a common centre. Head very small. Eyes prominent. Arms very unequal, and two upper arms very long; order of length, 1, 2, 3, 4; inferior very short.—White; back red spotted, above the eyes blue.

Octopus (Philonexis) Eglais *D'Orb. Voy. Amér. Mérid. Moll.* 20. t. 1. f. 18. 14. 1835.

Philonexis Eglais *D'Orb. Mon. Céph. Acét.* 102., *Poulpes*, t. 17. f. 4, 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

Hab. North Atlantic Ocean.

3. PHILONEXIS MICROSTOMUS.

Body rounded, large, smooth, reddish. Head broad. Eyes very large, prominent. Arms smooth, short, very unequal, not webbed; order of length, 1, 2, 4, 3; upper three times as long as lower.

Octopus microstomus *Regnaud, Mag. de Zool.* 23. 1834.

Philonexis microstomus *D'Orb. Mon. Céph. Acét.* 101., *Poulpes*, t. 10. f. 5. 1838, *Moll. Viv. et Fos.* i. 204. 1845.

P. atlanticus, jun. ? *D'Orb.* l. c. 205.

Hab. North Atlantic Ocean.

*** *The upper Arms longest; rest gradually shorter, to the lowest.*

4. PHILONEXIS HYALINUS.

Body short, broad, smooth, oval, larger before than behind; aperture very large; diaphanous, whitish, marked with red. Head short. Eyes large, prominent, subpedunculated. Arms unequal, not webbed, as long as the body; order of length, 1, 2, 3, 4; upper much longer than the lower.

Octopus hyalinus Rang, *Féruss. et D'Orb. Mon. Céph. Cryptod. Poulpes*, t. 16. f. 1. 1835; Rang, *Mag. de Zool.* 1837, cl. v. 66. t. 92. 1837.

Philonexis hyalinus D'Orb. *Mon. Céph. Acét.* 104., *Poulpes*, t. 16. f. 113. 1838, *Moll. Viv. et Fos.* i. 205. 1845.

Hab. Atlantic Ocean.

**** *The Arms very long, free, very slender. Cups far apart.*

5. PHILONEXIS TUBERCULATUS.

Body oval, pointed behind, very large, smooth above; beneath covered with small, short, horny tubercles, united by netted ridges; aperture very large. Head short, not very distinct; water-bearing apertures four, two above and two below. Arms slender, elongate, nearly equal; comparative length, 1, 4, 2, 3; scarcely webbed. Cups distant, united in each line by an intermediate membrane. Siphuncle very large, larger than the head.—Brown, silvery beneath; arm bluish.

Octopus tuberculatus Risso, *Hist. Nat. Eur. Merid.* iv. 3. n. 4. 1826; *Delle Chiaje, Mem.* iv. 55, 56. t. 55. n. 3. 1832 *Mém. sur l'Aplysia*, p. 68. note.

Octopus reticularis *Petagna, Rappelle delle Sc. di Napoli*, 1826 (1828).

Octopus catenulatus *Férussac, Poulpes*, t. 6. 6*. 6**. 1828.

Octopus Verany *Wagner, Zeitschr. für die Org. Phys.* ii. 1828, *Bullet. Univ. des Sc. Nat.* xix. 388. n. 3.

Polpo di Férussac *Delle Chiaje, Mem.* iv. 41. 1829.

Octopus pictus *Blainv. Faun. Franç. Moll.* 8. n. 6. from Risso.

Philonexis tuberculatus D'Orb. *Mon. des Céph. Acét.* 87., *Poulpes*, t. 6. 6*. t. 23. 1838, *Moll. Viv. et Fos.* i. 206. t. 5. f. 2—6. 1845.

Hab. Mediterranean.

6. PHILONEXIS ALCÆUS.

Body smooth above and below; brown spotted. Arms elongate, slender, free; the upper and lower pairs very long; the two lateral pairs much shorter. Cups far apart.

Perhaps young of former, no appearance of tubercles beneath, both surfaces alike.

a, b. South of Europe. In spirits. Presented by P. B. Webb, Esq.

2. TREMOCTOPUS.

Arms moderate, triangular, upper surface flat, with two series of subcylindrical sessile cups; two upper pair longest, and webbed nearly to the tip. Aquiferous openings four; two above between the eyes, and two below, and sometimes six smaller on each side.

Tremoctopus Delle Chiaje, MS. 1835, quoted by D'Orbigny; Verany, Cat. Anim. Invert. 1848.

Tremoctopus Gray, Proc. Zool. Soc. 1847, 205. n. 793. misprint.

Philonexis sp. D'Orb. Céphal. Acét. 1838, Moll. Viv. et Fos. i. 205.

Ocythoe sp. Risso, Eur. Merid. iv.

Octopus sp. Férussac, Rang.

Phisoniscus Rüppell, MS. Brit. Mus.

* *Webs moderate. Lower Arms shorter, free. Head large.*

1. TREMOCTOPUS QUOYANUS.

Body smooth, oblong, large, pointed behind; white, marked with red. Head large, smooth. Eyes large, prominent, without eyelids, blue above. Water apertures four; two above between the eyes, and two below. Arms elongated, unequal; order of length, 1, 2, 4, 3; two dorsal pair longest, and webbed together half their length.

Octopus (Philonexis) Quoyanus D'Orb. Voy. dans l'Amér. Mérid. Moll. 17. t. 2. f. 6—8. 1835, Mag. de Zool. 1835, 141.

Philonexis Quoyanus D'Orb. Mon. Céph. Acét. 96., Poulpes, t. 16. f. 68. 23. 1838, Moll. Viv. et Fos. i. 202. t. 5. f. 1. 1845.

Octopus semipalmatus Owen, Trans. Zool. Soc. ii. t. 21. f. 12, 13. 1836.

Hab. Middle of South Atlantic Ocean.

** *Arms all webbed. Head moderate, with several small ocular aquiferous Apertures.*

2. TREMOCTOPUS VIOLACEUS.

Body rather ovoid, truncated anteriorly, nearly smooth, violet. Head short. Aquiferous apertures four, large; two above and two below; and six small ones near each eye. Arms elongated; ord

of length, 2, 1, 3, 4; two dorsal pairs flattened, and webbed to the tip.

Octopus velifer *Féruss. Poulpes*, t. 18, 19. 1830; *Verany, Cat.* 1829.

Tremoctopus violaceus *Delle Chiaje, MS.* 1835; *Verany, Cat.* 1829.

Octopus violaceus *Féruss. Poulpes*, t. 20. from Chiaje.

Octopus velatus *Rang, Mag. de Zool.* p. 60. 1837.

Philonexis velifer *D'Orb. Mon. Céph. Acét.* 91., *Poulpes*, 18, 19, 20. 23. 29. 1838, *Moll. Viv. et Fos.* i. 205. t. 5. f. 7. 1845.

Phisoniscus velatus *Rüppell, MS. Brit. Mus.*

Ocythoe mygaro *Risso, Eur. Merid.*

Hab. Mediterranean.

a. Messina. Adult. In spirits. Dr. Rüppell's Collection.

FAM. III. OCYTHOIDÆ (ARGONAUTIDÆ?).

Body ovoid, enlarged in front, smooth, covered with a thin skin marked with chromatic glands. Ventral aperture extending to under the eyes. Cervical band moderate. Ventral part of the mantle supported by an elevated button on the inner side near the margin, fitting into a notch at the base of the siphuncle.

Head oblique, short above and long below. Eyes lateral, very large, ovate, prominent, covered on the upper edge with a very thin eyelid. Beak broad, not compressed. Ear small, behind the eye, under the cervical band and lateral aquiferous opening. Aquiferous openings one pair at the upper hinder angle of the eye.

Arms tapering, very unequal; the dorsal pair bent back on themselves and furnished with a membrane, the lower pair with a broad membranous exterior keel, the lateral pairs depressed. Cups in two series, prominent, as if slightly pediceled.

Siphuncle very large, conical, attached by two exterior lateral and two other medial very thin bands.

? *Shell* (ARGONAUTA) exterior, one-celled, thin, brittle, transparent, horny, calcareous, slightly flexible when wet; nucleus hemispherical, very large.

The female *Ocythoes* are often found in the shell of the *Argonaut*, and have hence been supposed to form these shells, and as yet no other animal has been found inhabiting them; but there are several reasons for believing that the *Ocythoe* is only a parasite adapted by its form to live in such shells, as the web of the arms is used by the animal to embrace the shell and keep it in its right

position on the body. Unlike all other Mollusca, which form the shell they inhabit: First, the *Ocythoe* is not attached to the shell by any muscle, nor has it any muscle, like the bone-bearing cuttlefish, formed for the purpose of attaching the body to an internal shell. Secondly, the animal, when alive, does not fit the shell; so that the shell cannot have been moulded on its body, as in other Mollusca. Thirdly, the skin of the *Ocythoe* is of the same texture and appearance as in the other naked *Cephalopoda*; and the presence of sand between the shell and the body appears to cause no uneasiness to the animal, as it does in all other shell-bearing Mollusca, where the animal immediately rids itself of the irritation so caused by covering the sand, &c., with a calcareous coat. The animals found in these shells are always female, and the apex of the shell is filled with very small eggs; while from the large size of the young shell, which is seen on the apex of the true Argonaut, we should expect the animal which formed that shell to have a large egg; for, though the eggs of Mollusca are enlarged during the hatching, they are not, in any case I have observed, so much enlarged as to have such a shell.

It is supposed by those who believe that the shell belongs to the *Ocythoe*, that it is formed and mended when broken by the expanded ends of the upper arms, which embrace the outer surface of the shell, and keep it on the body of the animal.

Cranch and Adams, who have seen these animals alive, state that they leave the shell when they are frightened, and they cannot recover their position in the shell after they have thus left it.

Mr. Adams regards the Argonaut shell as a nest formed by the female to contain her eggs; if this is correct, it can scarcely be compared to other shells. He regards them as similar to the cartilaginous cases which Murices and other zoophagous Mollusca form to contain their eggs!; but they have no apparent analogy to those bodies, which are secreted by the oviduct as the eggs are deposited.

These various views show that the origin of the shell is not yet distinctly settled.

Living on the high seas, floating, and feeding on floating Mollusca.

- Cephalopoda testacea* (pars) *Cuvier, Anat. Comp.* 1800.
Cephalopoda testa unilocularia *Lamck. Phil. Zool.* i. 322. 1809.
Ceph. Argonautidæ *Cantraine, Mall. Médit.* 13. 1841.
Ceph. Argonautica *Gravenhorst, Thier.* 1845.
Philonexidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 199. 1845.
C. cymbicochides (pars) *Latr. Fam. Nat.* 168. 1828.
C. octopia and *C. argonautica* *Rafin. Anal. Nat.* 1815.
Cephalopodes monothalmes *Lamck. Hist.* ed. 2. 171. 343.
Ocythoïna *Gray, Proc. Zool. Soc.* 1847. 204.

1. OCYTHOE.

See character of the Family.

Ocythoe Rafin. *Anal. Nat.* 1815; *Leach, Phil. Trans.* 1818; *Blainv. Malac.* 1825.

Octopus *ε.* *Blainville, Malac.* 1825.

Ocytoe *D'Orb. Moll. Viv. et Fos.* p. 223. (misprint?).

Shell, ARGONAUTA *Linn.*

Nautilus, Nautilus, *Aristoteles.*

Nautilus, Pompilius, *Plinius.*

Cymbium *Gualteri, 1742.*

Argonauta *Linn., Brug., Rafin. Anal. Nat.* 1815; *Risso, Eur. Merid.* 1826; *Lamarck, D'Orb. Moll. Viv. et Fos.* i. 260.

1. OCYTHOE TUBERCULATUS.

Animal elongate. Body oblong, smooth. Eyes large, prominent. Arms unequal; in the following order, 1, 4, 2, 3; the dorsal pair elongate; the second and third pairs without any internal groove; the third pair depressed their whole length. Siphuncle united to the base of the arms by a lateral membrane.

Ocythoe tuberculata *Rafinesque, Précis de Découv. Somiol.* 29.

Ocythoe Argos *Deshayes, Enc. Méth.* iii. 643.

Ocythoe antiquorum *Leach, Zool. Miscel.* iii. 139., *Journ. de Phys.* lxxxvi. 394.; *Blainv. Journ. de Phys.* lxxxvi. 360. 434—447.

Ocythoe probatio *Leach, Phil. Trans.*

Octopus antiquorum *Blainv. Dict. Sc. Nat.* xliii. 192. t. 1 bis, f. 1.

Octopus Argonauta *Blainv. Malacol.* 366. t. 1 bis, f. 1.

Octopus tuberculatus *Blainv. Dict. Sc. Nat.* xliii. 196.

? Argonauta compressa *Blainv. Dict. Sc. Nat.* 212.

Argonauta Argo *D'Orb. Paléont. univ.* t. 1, 2. f. 1—5., *Paléont. étrang.* t. 1. t. 2. f. 1—5., *Moll. Viv. et Foss.* i. 226. t. 6 and 7. f. 1—5.

Hab. Mediterranean, Cape of Good Hope, Indian Ocean.

a. Mediterranean. Adult, without shell. In spirits. Presented by Rev. W. Hennah.

b. Mediterranean. Junior, without shell. In spirits. Presented by Rev. W. Hennah.

c. Mediterranean. Adult, without shell. In spirits. Presented by J. Bates, Esq., R. N.

d. Mediterranean. Adult, without shell, with eggs. In spirits. Presented by W. E. Leach, M. D.

"Ocythoe probatio" *Leach.*

- e, f. Mediterranean. In Argonaut shell, expanded and contracted.
- g. Indian Ocean. In Argonaut shell, contracted. Presented by Capt. Sir Edward Belcher, C. B., R. N.

Shell (ARGONAUTA ARGO) compressed, transversely ribbed on the sides, adorned with unequal bifurcated ribs. Keels two, approximate, tuberculiferous; tubercles small, very frequent. Aperture compressed, sagittate, truncated in front.

- Argonauta Argo Linn. *Syst. Nat.* 10. edit. 708. n. 231., *Mus. Lud. Ul.* 548. n. 148., *Syst. Nat.* 12. ed. 1161. n. 271.; *Born, Ind. Mus. Cæs.* 119. A. 1., *Test.* 140, *Vign.* 139.; *Gmel. Syst. Nat.* 3367.; *Brug. Enc. Méth. Vers.* i. 122.; *Walfen, Nov. Act. Phys. Nat. Cur.* viii. 235.; *Olivi, Zool. Adriat.* 129.; *Schreibers, Conchylien*, i. 1. n. 1.; *Turton, Syst. of Nat.* iv. 304.; *Duvernoy, Dict. Sc. Nat.* iii. 102.; *Fischer, Mus. Demidow*, iii. 245.; *Wood, Zoography*, ii. 579.; *Montfort, Conchyl.* ii. t. 6, 7.; *Oken, Lehrb. der Zool.* ii. 336.; *Brooke's Introd. to Conchol.* 90. t. 5. f. 53.; *Burrow, Elements of Conchol.* 75. t. 12. f. 1.; *Brown, Elements of Conch.* 65. t. 7. f. 18.; *Dillwyn, Descr. Cat.* i. 333.; *Schumacher, Ess. d'un Nouv. Syst.* 268.; *Ranzani, Consid. su i Moll. Cefalop. del Argon* in *Opusc. Scient. et Mem. di Stor. Nat.* dec. 1. p. 85. t. 6. f. 1.; *Lamarck, Anim. s. Vert.* 2d edit. viii. 652. n. 1.; *Sowerby, Genera of Shells*; *Férussac, Dict. Class.* i. 552. n. 2.; *Mawe, Linn. Syst. Conchol.* 79. t. 18. f. 1.; *De Martins, Reize nach Venedig*, ii. 438.; *Wood, Ind. Test.* 62. t. 5. f. 1. 2d edit. t. 13. f. 1.; *D'Orb. Prodr.* 47. n. 1.; *Féruss. Not. sur l'Anim. du Genre Argonaute*, in *Mém. Soc. d'Hist. Nat. Paris*, ii. 160. t. 14.; *Poli, Mem. sul Nautil. o Argon. Arg. l'Antologia*, 58., *Test. utriusq. Sicil.* iii. 1. t. 40. to 43., *Ann. of Philos.* 1825, 152.; *Payradeau, Cat. Moll. Corse*, 172. n. 348.; *Risso, Hist. Nat. Eur. Merid.* iv. 4.; *Blainville, Dict. Sc. Nat.* xliii. 212., *Malacolog.* 494.; *Rapp, Ueber die Naturwiss. Abhand.* i. 67. t. 2. f. 1, 2.; *Mauriani, Giorn. de Fisica*, ix. 390.; *Broderip, Zool. Journ.* iv. 57. and 224. t. 3.; *Costa, Cat. de Test.* n. 1. 61.; *Delle Chiaje, Mem. sul. Stor. Nat.* ii. 219.; *Blanchart, Bullet. Soc. Linn. Bord.* iii. liv. iv. 195.; *Eichwald, Zool. Spec.* ii. 34.; *Guérin, Iconog. Règ. An. Moll.* t. 1. f. 3. a. 6.; *Philippi, Enum. Moll. Sic.* 240.; *Potier et Michaud, Gal. de Douai*, 2. n. 1.; *D'Orbigny, Moll. des Antilles*, i. 24. n. 5.; *Reeve, Conch. Syst.* ii. 305. t. 300.
- Nautilus papyraceus Martini, Conchyl. Cab.* i. 230. t. 17. f. 157.; *Shaw, Nat. Miscell.* iii. t. 101.; *Cubières, Hist. abrég. des Coq.* 43. t. 4. f. 6.
- Argonaute papyracé Bosc, Buff. de Detero. Coq.* iii. 261. t. 27. f. 6.; *Montfort, Buff. de Sonnini, Moll.* 119. t. 35.

Argonauta corrugata *Humphrey, Mus. Calon.* 6. n. 80. 1797.

Argonauta sulcata *Lamarck, Syst. An. s. Vert.* 99. 1801.

Argonauta grandiformis *Perry, Conchyl.* t. 42. f. 4.

Arg. striata *Perry, Conchyl.* t. 42. f. 4.

Hab. Atlantic Ocean, Cape of Good Hope, Amboyna, Mediterranean.

a—j. Shells, different ages. From Mr. Broderip's Collection.

k. Shell. From Mr. Mantell's Collection.

l. Shell. —————.

m. Shell. Mus. Cracherode.

n, o. Shell. Malta. Presented by Miss E. Attersoll.

2. OCYTHOE RARICYATHUS.

Animal elongate. Body acuminate behind, smooth. Arms more webbed below than above, unequal; in the following order, 1, 2, 4, 3; the second and third pairs keeled on the outer side; the third pair depressed.

Octopus raricyathus *Blainville, Mém. Journ. Phys.* lxxxvi 393. 1824, *Dict. Sc. Nat.* xliii. 104.

Argonauta nodosa *D'Orb. Moll. Viv. et Fos.* i. 231.

Hab. Cape of Good Hope, India.

Shell (*ARGONAUTA NODOSA*) compressed, thin. Sides with transverse rugæ, which are longitudinally tuberculiferous; tubercles of keels rather eminent, compressed. Aperture compressed externally, having two divaricate ears.

Argonauta Argo *Linnaeus, Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Gmelin, Lin. Syst. Nat.* var. b. e.; *Bruguère, Encyc. Méth. Vers.* i. 123. var. b.; *Turton, Syst. Nat.* iv. var. 4.

Argonauta nodosa *Solander, MS.*, and *Portland Cat.* 76. 2120. 17.; *Humphrey, Mus. Calon.* 6. n. 81. 1797; *D'Orbigny, Moll. Viv. et Fos.* i. 231.

Nautilé papyracé *Favart d'Herbigny, Dict.* ii. 425, 426.

Paper Nautilus *Kümmerer, Cabin. Rudolst.* 29. var. 6.

Le Nautilé à grains de riz *Favanne, Conchyl.* i. 714. t. 7. f. A. 7. A. 9. p. 715.

Argonauta oryzata *Museum Geversianum,* 252. n. 133.

Argonaute à grains de riz *Montfort, Buff. de Sonnini, Moll.* iii. 307. t. 37, 38, 39. f. 1. p. 332. t. 40. p. 364.

Argonaute chiffonné, Argonaute à oreilles, Sonnini, Moll. iii. 307. t. 39. f. 2.; *Martini, Conch. Cab.* i. 221. f. 1. 229. t. 17. f. 156. t. 18. f. 166.

Argonauta navicula *Soland. MS.*, and *Port. Cat.* 42. 1055.

Argonauta vitrea *Perry, Conch.* t. 42. f. 1.

Argonauta tuberculata Shaw, *Nat. Misc.* xxiii. t. 995.; *Dillwyn, Descript. Cat.* 334.; *Blainville, Journ. de Phys.* lxxxvi. 445. f. 1. a, b, c.; *Wood, Ind. Test.* 62. n. 2. t. 13. f. 2.; *Bowdich, Elements of Conch.* t. 13. f. 4.; *Férussac, Dict. Class.* i. 552. n. 3.; *D'Orbigny, Prodr.* 48. n. 3.; *Eichwald, Zool. Spec.* ii. 34.; *Deshayes, Enc. Méth.* ii. 69.

Argonauta tuberculosa Schumacher, *Ess. d'un Nouv. Syst.* 260.; *Lamarck, An. s. Vert.* 2d edit. vii. 632. p. 2.; *Blainv. Dict. Sc. Nat.* xliii. 212. f. 1. a, b., *Malacolog.* 365. t. 1. f. 1. a, b.

Hab. Indian seas.

a, b. Shells. Mr. Broderip's Collection.

c. Shell. New Zealand. Presented by And. Sinclair, M.D., R.N.

d, e. Shells. New Zealand. Presented by Dr. Dieffenbach.

f—h. Shells.

i. Shell. Mus. Cracherode.

k, l. Shells. Mr. Broderip's Collection.

m. Shell. Chiloe. Mr. Broderip's Collection.

n—r. Shells, young.

s. Shell. In spirits. One ear. Mr. Broderip's Collection.

3. OCYTHOE CRANCHII.

Animal small. Head long. Ventral aperture large. Aquiferous openings two. Arms short, unequal; in the following order, 1, 2, 3, 4; the webbed arms small, thick.

Ocythoe Cranchii Leach, *Journ. Phys.* 1817; *Tuckey, Voy. Congo*, 410. t., *Phil. Trans.* 1817, 296. t. 12.; *Blainv. Journ. Phys.* lxxxvii. 47. t. 86. f. 2. a, b., *Dict. Sci. Nat.* xlii. 195.

Octopus punctatus Blainv. *Dict. Sci. Nat.* xliii. 195.

Argonauta hians D'Orb. *Moll. Viv. et Foss.* i. 232.

Hab. Atlantic Ocean.

a. Coast of Africa. Without shell. In spirits. Presented by J. Cranch, Esq., Congo Expedition.

b. ———? With young shell. In spirits.

Shell (ARGONAUTA HYANS) compressed, whitish brown, adorned with unequal radiating ribs. Keels remote, margined on each side with thick tubercles. Aperture broad, oblong.

Argonauta Argo Linn. *Syst. Nat.* edit. 9, 10, 11, 12. 1161. n. 271. part; *Born, Test. Mus. Cæs.* 140. var. β.; *Gmel. Syst. Nat.* 3369. var. δ.; *Bruguère, Encycl. Méth. Vers.* i. 123. var. c.; *Turton, Syst. of Nat.* iv. var. 3.

Nautilus papyracens Davila, *Catal. Syst.* i. 108. n. 87. 2d spec.; *Seba, Thesaur.* iii. t. 84. f. 9—12.; *Menschen, Cat. Mus. Oud*

8. n. 49.; *Cat. Mus. Leersian.* 10. n. 66, 67.; *Favart d'Herbigny, Dict.* ii. 426.; *Favanne, Cat. de la Tour d'Auvergne,* 57. n. 248., *Conchyl.* i. 711. t. 7. f. Δ 6. f. Δ 3. 713., f. Δ 10. f. Δ 1. p. 717.
- Argonaute papier brouillard *Montfort, Buff. de Sonnin. Moll.* iii. 358 and 371.
- Nautilus tenuis Martini, Conch. Cab.* i. 235. t. 17. f. 159, 659. et p. 238., vignette, p. 221. f. 2.
- Argonauta hyans *Solander, MS.*, and *Portland Cat.* 44. 1045.; *Humphrey, Mus. Calonn.* 6. n. 82.; *Dillwyn, Desc. Cat.* 334. p. 3.; *Férussac, Dict. Class.* i. 553. n. 4.; *D'Orb. Prodr.* 48. n. 5.; *D'Orb. et Féruss. Mon. Céph. Acét. Argonautes,* t. 5.; *D'Orbigny, Paléont. univ.* t. 2. f. 6—10., *Paléont. étrang.* t. 2. f. 6—10., *Moll. Viv. et Fos.* i. 223. t. 7. f. 6—10.; *Adams, Voy. Samarang, Moll.* 4. t. 3. f. 2. a, b, c.
- Ocythoe Cranchii Leach, Phil. Trans.* 1817, 296. t. 12. f. 1—6.
- Argonauta Cranchii *Férussac, Dict. Class.* i. 552. n. 1.; *D'Orb. Class. des Céph.* 48. n. 6.
- Argonauta haustum *Dillw. Descr. Cat.* 335.; *Wood, Ind. Test.* 62. n. 5.; *Deshayes, Enc. Méth.* ii. 70. n. 3.; *D'Orb. Moll. de l'Am. Mérid.* 12., *Moll. des Canar.* 17. n. 3., *Moll. des Antill.* i. 28. n. 6.
- Argonauta gondola *Dillwyn, Descr. Cat.* 335. n. 4.; *Wood, Ind. Test.* 62. n. 4.; *Férussac, Dict. Class.* i. 553. n. 5.; *Mawe, Lin. Syst. Conchol.* 79. t. 18. f. 2.; *Deshayes, Encyc. Méth.* ii. 69. n. 2.; *Adams, Zool. Voy. Sam. Moll.* 3. t. 1. f. 2. a., t. 2. f. 2. g, r, s, t.
- Argonauta nitida *Lamarck, An. s. Vert.* vii. 653. n. 3.; *Blainv. Dict. des Sc. Nat.* xliiii. 213.; *Crouch, Conchyl.* 43. t. 20. f. 17.; *Deshayes, Encyc. Méth.* ii. 69.
- Argonauta crassicostata *Blainv. Dict. Sci. Nat.* xliiii. 213.
- Argonauta raricosta *Blainv. Dict. Sc. Nat.* xliiii. 213.; *Deshayes, Enc.* ii. 69. n. 1.
- Argonauta Owenii *Adams, Zool. Voy. Samarang,* 4. t. 3. f. 1. a, b, c.
- Hab.* Coast of Africa, China.
- a—c. Shells. Mr. Broderip's Collection.
- d. Shell. Without ears. Mr. Broderip's Collection.
- e. Shell. China. Presented by John Reeves, Esq.
- f—j. Shells, young.

Species not sufficiently described.

4. "ARGONAUTA RUFA."

Animal and shell thick, red.

Argonauta rufa Owen, Trans. Zool. Soc. ii. 114.

Hab. South Pacific. *Capt. P. P. King, R. N.*

ORDER II. SEPHINIA.

Body elongate, oblong, or cylindrical, sometimes without any cervical band. Fins developed, lateral or dorsal, posterior. Mantle supported by a fleshy band, or by cartilaginous buttons and loops.

Head smaller than the body. Eyes free in the orbit, turning in every direction in the very large orbital cavity. Buccal membrane largely developed. Aquiferous apertures on the lips and arms, but none on the head.

Arms ten; eight sessile, often edged with membranes; two tentacular, elongated, coming out between the third and fourth pairs of sessile arms and the lips. Cups oblique, peduncled, strengthened with a horny ring, sometimes formed into a claw.

Siphuncle almost always provided with an internal valve.

Shell internal, longitudinal, occupying and strengthening the middle of the back.

Sepia Linn. *S. N.*

Ceph. antepedia Sephinia Rafin. *Anal. Nat.* 139. 1815.

Cephalopoda decapoda Leach, *Zool. Misc.* iii. 1817; Férussac, *Tabl. Syst.* 18. 1821; Gray, *Proc. Zool. Soc.* 1847, 205.; Menke, *Syn.* i. 1828; Cantraine, *Mal. Médit.* 13. 1841.

Antliobrachiophora Sepiaphora Gray, *Lond. Med. Rep.* 1821.

Cryptodibranchiata decacera Blainv. *D. S. N.* xxii. 1824; Menke, *Syn.* ed. 2. 1830.

Cephalopoda decapoda enterostea Latr. *Fam. Nat.* 160. 1825.

Loliginea Gravenh. *Thier.* 34. 1834.

Decabrachides Blainv.

Sepiaceæ Blainv. *Dict. Sci. Nat.* xii. 90. 1818; Ehrenb. *Sym. Phys.* 1831.

Sepiadæ Fleming, *Brit. Anim.* 252. 1828.

Sepiæ (les Seiches) Féruss. *Tab. Syst.* 24. 1821.

Sepiaphora Gray, *Lond. Med. Rep.* 1821; Desh. *Ency. Méth.* iii. 946.

Sepiophora Gray, *Mem. B. M.* 92. 1843; Herrmannsen, *Ind.* ii. 442.

Sepialea (pars) (les Sepiales) Lamck. *Phil. Zool.* 1809.

Sepiolea Lamck. *Extrait du Cour.* 1812; Desh. *Ency. Méth.* p. 236. 1830.

Sepiaria (pars) (les Sepiaries) Lamck. *Hist.* vii. 654. 1822.

Sepiina Macgillivray, *Moll. Aberd.* 22. 1843.

Sepiidæ Cantraine. *Malac. Méd.* 13. 1841; Leach, *Zool. Misc.* iii. 138. 1817.

M. D'Orbigny separates this order into two suborders (*Mémoires de l'Académie des Sciences de Cuba*, i. 7. 1841) thus :

- i. *Myopsidæ*. Eyes covered with the skin, without immediate contact with the water: this will contain *Cranchiadae*, *Sepiadae*, *Spirulidae*, and *Loligidae*.
- ii. *Oigopsidæ*. Eyes open externally, in immediate contact with the water: *Loligopsidæ*, *Chiroteuthidæ*, *Onychoteuthidæ*, and *Belemnitidæ*.

Synopsis of Families.

A. *Shell solid, horny.*—CHONDROPHORA.

Α. *Mantle supported by two internal fleshy Bands.* (Allied to *Ocyropsidæ*.)

I. *CRANCHIADÆ*. Eyes covered with the skin. Siphuncle with a valve.

II. *LOLIGOPSIDÆ*. Eyes naked. Siphuncle simple.

Β. *Mantle furnished with three internal Cartilages; one dorsal, two ventral.*

III. *CHIROTEUTHIDÆ*. Eyes naked, simple above. Siphuncle simple.

IV. *ONYCHOTEUTHIDÆ*. Eyes naked, with a sinus above. Siphuncle with a valve.

V. *LOLIGIDÆ*. Eyes covered with skin, simple.

B. *Shell cellular, calcareous. Mantle with two cartilaginous Ridges on ventral side.*—SEPIAPHORA.

VI. *SEPIADÆ*. Eyes covered with skin. Head united to mantle by a broad cervical band.

C. *Shell chambered, siphoned, calcareous or horny.*—BELEMNITOPHORA.

VII. *SPIRULIDÆ*. Shell spiral, whorls separate.

VIII. *BELEMNITIDÆ*. Shell straight.

Suborder I. *CHONDROPHORA*.

Shell internal, solid, horny or cartilaginous, either lanceolate, pinnate, with a central longitudinal dorsal ridge above, and a groove beneath, sometimes thick on each side near the edges; or flat, narrow, with a narrow central longitudinal solid rib, and a similar rib on each edge. The apex solid, sometimes thickened, produced, and cartilaginous.

Teuthomorpha (pars) *Bronn, Gesch. der Nat.* 538. 1847.

SECT. I.—Ventral side of mantle supported by two internal fleshy bands. 1. CRANCHIADÆ. 2. LOLIGOPSIDÆ.

SECT. II.—Ventral side of mantle free, with two internal cartilaginous ridges. 3. CHIROTEUTHIDÆ. 4. ONYCHOTEUTHIDÆ. 5. LOLIGIDÆ.

2. *Mantle supported by two internal fleshy Bands on the ventral Side, Body soft, semitransparent, elongate. Fins posterior, dorsal.*

FAM. I. CRANCHIADÆ.

Body large, membraneous, ventricose, rounded behind, narrowed and truncated in front. Fins terminal, affixed to a special prolongation of the body, oval, separated by a nick behind; united to the head by a narrow cervical band, and below by a fleshy band on each side of the base of the siphuncle.

Head very small, very narrow in front and behind the eyes. Eyes large, prominent, covered with a continuous skin with a small transparent spot. Buccal membranes large, acutely eight-lobed; lobes opposite to the base of the arms.

Arms. Sessile arms conical, subulate, short, unequal, without fins, and with two rows of cups; the third pair longest; three upper pairs shortly webbed together. Tentacular arms large; club finned behind, and with four series of cups.

Siphuncle very long, obliquely truncated at its extremity, with an internal valve, but no superior central band.

Shell horny, as long as the body, narrow, bilanceolate, and pointed at each end.

Cranchina Gray, *Proc. Zool. Soc.* 1847, 205. n. 801.

Cranchia Férussac, Owen, *D'Orb. Moll. Viv. et Fos.* i. 238.

Sepidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 238. 1845.

Calmars B. Les Cranchies Blainville.

Teuthidæ (pars) Owen, *Trans. Z. S.* ii. 4. 1838.

1. CRANCHIA.

See character of Family.

- Cranchia Leach*, *Zool. Misc.* iii. 137. 1817; *Tuckey, Voy.* 140. 1817; *Férussac et D'Orb. Tab. Céphal.* 58. 1825; *Owen, Trans. Zool. Soc.* ii. 21. 1836; *D'Orb. et Férussac, Céph. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 238., *Moll. Antil.* 1839.
Calmars B. Les Cranchies Blainv. Dict. Sc. Nat. xxvii. 135.

1. CRANCHIA SCABRA.

Body and head covered above with numerous horny tubercles, divided into two, three, or four points. Body very voluminous, flask-shaped. Fins rounded, united by their sides. Eyes very large. Sessile arms unequal; order of their length, 3, 2, 4, 1; cups far apart on the margin of the arms. Tentacular arms contractile; cups smaller than those of the sessile arms. Shell horny, very narrow; narrowed in the middle, and expanded and acute at each end.

- Cranchia scabra Leach, Tuckey, Exped. to Congo*, 410. t. 1817, *Zool. Miscell.* iii. 137., *Journ. de Phys.* lxxxvi. 395., *Pl. de Juin*, n. 6.; *D'Orbigny, Tab. Méth. Class. de Céph.* 58.; *Owen, Trans. Zool. Soc.* ii. t. 21. f. 1—5.; *D'Orb. et Féruss. Céph. Acét.* n. 1., *Cranchia*, t. 1. f. 1.; *D'Orb. Moll. des Antilles*, i. 32. n. 7., *Moll. Viv. et Fos.* i. 239. t. 8. from Owen and Leach.
Loligo Cranchii Blainv. Journ. de Phys. 123. 1823, *Dict. Sc. Nat.* xxvii. 135.; *Férussac, Dict. Class. d'Hist. Nat.* iv. *Atlas*, f. 4.

Hab. Atlantic Ocean. Sea of West Indies.

- a. Africa, Congo. In spirits. Mr. J. Cranch, from the Congo Expedition.
 b. The shell of a.

2. CRANCHIA MACULATA.

Body smooth, very beautifully marked with black spots; ovate, distant. Head and arms ————— ?

- Cranchia maculata Leach, Tuckey, Exped. to Congo*, 410. t. 1817, *Journ. de Phys.* lxxxvi. 395.; *D'Orbigny, Tab. Méth. de la Class. de Céph.* 58., *Moll. Viv. et Fos.* i. 241.; *D'Orb. et Féruss. Céph. Acét.* 224.

Loligo lævis Blainville, Journ. de Phys. 123. 1823, *Dict. des Sc. Nat.* xxvi. 135.

Hab. Atlantic Ocean.

- a. Africa, Congo. In spirits. The sac only. Presented by Mr. J. Cranch, from the Congo Expedition.

FAM. II. LOLIGOPSIDÆ.

Animal membranaceous, semipellucid.

Body elongate, tapering behind. Mantle supported by three muscular bands; one medial dorsal under the end of the shell, and one on each side of the ventral surface. Fins caudal, terminal, semicircular; their united outlines oval or rounded. Ears without any crest.

Head small, broad. Eyes lateral, anterior, peduncled, naked, without any lacrymal sinus. Buccal membrane very short. No buccal, brachial, nor anal aquiferous pores.

Siphuncle without any superior central band; no internal valve.

Shell internal, horny, elongated, slender, pennate, solid.

Loligopsidæ Gray, *Syn. B. Mus.* 1840, *Proc. Zool. Soc.* 1847, 205.; *D'Orb. Moll. Cuba*, i. 7., *Ann. Sc. Nat.* xvi. 1841, *Moll. Viv. et Fos.* i. 367. 1847.

Teuthidæ (pars) Owen, *Trans. Zool. Soc.* ii. 2. 1838.

I. LOLIGOPSIS.

Body very much elongated, conical, attenuated. Mantle supported by three muscular bands; one medial, dorsal, under the end of the shell, and one on each side of the ventral surface.

—*Head* small, broad, very short, much depressed, narrow behind. Eyes peduncled, very large, naked. Buccal membrane seven-lobed, without cups. — *Sessile arms* conical, subulate, very contracted, rounded, very unequal. Cups oblique, peduncled, in two alternating series; rings smooth. Tentacular arms not retractile, slender, marginal, dorsal. — *Siphuncle* very large, broad, elongate, nicked on the sides, without any central superior band or internal valve. — *Shell* internal, horny, flexible, slender, keeled above; very narrow, lanceolate, thickened at the tip. — Living in the high seas.

Loligopsis (Calmaret) Lamck. *Extr. d. Cour.* 1812; *Férussac et D'Orb. Céph.* 1839.

Loligopsis Lamck. *Hist.* vii. 659. 1822; *D'Orb. Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 368.; *Grant, Trans. Zool. Soc. Lond.* i. 21. *Anat.* 1847; *Owen, Trans. Zool. Soc.* ii. 2.

Leachia LeSueur, *Jour. Acad. Philad.* ii. 89. 1821, not Risso, E. M. 1826; "Lesson," *Blainv. Malac.* 1825.

Loligo sp. Blainville, *Journ. de Phys.* 1823.

Perothis Eschscholtz, *MS.* 1827?; Rathke, *Mém. Acad. Pétersb. par divers savans*, ii. 1835.!

* *Smooth.*—*Loligopsis*.1. *LOLIGOPSIS PAVO*.

Body smooth, very much elongated, conical, spotted with red. Fins terminal, short, soft, narrow, outline together heart-shaped, not notched in front. Sessile arms short, slender, three upper pair rounded. Cups much depressed, broad, oblique; rings smooth exteriorly, inner edge divided into square teeth. Tentacular arms slender. Shell elongate, very thin, nearly gelatinous, attenuated anteriorly, lanceolate posteriorly.

Loligo pavo *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 96. n. 5. t. ad p. 97. 1821; *Blainv. Journal de Phys.* 1823, 33., *Dict. des Sc. Nat.* xxvii. 145.; *Féruss. Dict. Class.* iii. 67. n. 16.

Loligopsis pavo *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 6. f. 1. 4., *Loligopsis*, t. 4. f. 1. 8. 1839; *D'Orb. Moll. Viv. et Fos.* i. 369. t. 23. f. 5—10.

Hab. Atlantic Ocean, Arctic Seas, Madeira.

2. *LOLIGOPSIS ELLIPSOPTERA*.

Body funnel-shaped, semipellucid; hinder part of the body elongate, tapering. Fins depressed, semicircular, rounded, outline together oblong. Siphuncle very large. Arms very unequal; comparative length, 2, 3, 1, 4; the second pair longest; dorsal and ventral pairs small. Shell slender, penniform, horny.

Loligopsis ellipsoptera *Adams, Zool. Voy. Samarang, Mollusca*, t. 2. t. 1. f. 1.

Hab. North Atlantic.

Mr. Adams only describes eight arms, probably the peduncled arms were destroyed. Scarcely appears to differ from *L. cyclura*.

3. *LOLIGOPSIS ZYGÆNA*.

Fins half-oblong, together nearly square, narrower in front, broader and sinuous behind. Sessile arms, order of length, 1, 2, 4, 3; two upper pair longest, two lower short; the dorsal pair webbed at the base, rest free. Tentacular arms with small cups scattered on the elongated peduncles.

Loligopsis Zygæna *Verany, Cephal. ex Sicily*, t. 1. f. 2.

Hab. Sicily.

4. *LOLIGOPSIS VERMICOLARIS*.

Neck very thin and long. Fins together subcordate. Sessile arms with very small distant cups in alternate series; ten-

tacular arms with very numerous microscopic cups. Shell very slender.

Loligopsis vermicularis Rüppell, *Giorn. del Gabinetto di Messina*, xxvi. 1844-5.

Hab. Sicily.

** *Sides with Rows of acute Tubercles. Shell solid at Tip.*—
Leachia LeSueur, *Perotis Esch.*

5. LOLIGOPSIS CYCLURA.

Body elongate, rather fusiform, attenuated behind, whitish, spotted with red; sides with a longitudinal row of eleven acute four-pointed tubercles, and many smaller ones. Fins semicircular, broad, together subrhomboidal. Sessile arms large, conical, very contractile, unequal; proportionate length, 3, 2, 4, 1. Cups nearly spherical; rings oblique. Shell elongate, thin, very narrow anteriorly, lanceolate, rather dilated behind; tip very sharp, attenuated, solid.

Leachia cyclura *LeSueur*, *Journ. Acad. Nat. Inst. Soc. Philad.* ii. 90. t. 6. 1821.

Loligopsis cyclura *Féruss.* *Dict. Class.* ii. 68. pl. f. 3. 1823; *D'Orb. Moll. Viv. et Fos.* i. 370. t. 23. f. 4.

Loligo Leachii *Blainv.* *Dict. Sc. Nat.* xxvi. 135., *Journ. de Phys.* 1823, p. 124.

Loligopsis Leachii *Féruss.* *D'Orb. Tab. de Céph.* 57. 1825.

Loligopsis guttata *Grant*, *Trans. Zool. Soc. Lond.* i. 21. t. 2. 1833; *D'Orb. Céph. Acét. Loligops.* t. 1. f. 1. t. 3. t. 4. f. 9—16.

Perotis pellucida *Eschscholtz*, *MS.* 1827.

Perotis Escholtzii *Rathke*, *Mém. de l'Acad. des Sc. de St. Pétersb. par divers savans*, ii. 149. 1835. 149. t. 1. f. 1—15.

Tab. Indian Ocean.

*** *Doubtful Species.*

6. LOLIGOPSIS ? PERONII.

Body fleshy, oblong; the mantle subacute at the base, and finned inferiorly. Mouth terminal, surrounded with eight sessile and equal arms.

Loligopsis Peronii *Lamck.* *Cours de Zool.* 123. 1812, *An. s. Vert.* vii. 659.; *Férussac*, *Dict. Class.* ii. 68.; *Féruss. et D'Orb. Tab. Céph.* 57.; *D'Orb. Moll. Viv. et Fos.* i. 372.

Sepia sepiola Peronii *LeSueur*, *Journ. Acad. Nat. Sc. Philad.* ii. 100. 1821.

Sepiola minima *LeSueur*, *l. c.* 100. 1821.

Loligo parvula Péron, MS. (fide de Blainville).

Loligo Peronii Blainv. Journ. de Phys. 1823, p. 124., *Dict. de Sc. Nat.* xxvii. 136.

Hab. South Seas.

7. LOLIGOPSIS ?? CHRYSOPHTALMOS.

Body elongate, narrow; a large oval eyed spot on the middle of the ventral surface.

Loligopsis chrysophtalmos D'Orb. Moll. Viv. et Fos. i. 373. n. 4.

Sepia chrysophtalmos Tilesius Krusenstern, Voy. Atlas, t. 88. f. 32. 33.

Loligopsis Tilesii Féruss. Calmars, t. 1. f. 2, 3, 4. 1825.

L. chromorpha D'Orb. l. c. 373. 1845.

Hab. Japan.

8. LOLIGOPSIS DUBIA.

Perothis dubia Rathke, Mém. Acad. Imp. Pétersb. par divers savans, ii. 148. t. 1. f. 16, 17. 1835.

Hab. ——— ?

35. *Mantle free; furnished with two internal cartilaginous Ridges on the ventral Side, and a central one in the middle of the dorsal Side*

α. *Eyes naked.*

FAM. III. CHIROTEUTHIDÆ.

Animal semipellucid.

Body elongate, tapering behind. *Mantle* supported by two oblong cartilages placed on the inside of the mantle, with grooves on the base of the siphuncle, and a ridge or groove on the middle of the back. *Fins* on the sides of the hinder part of the back.

Head moderate. *Ears* without any crest. *Eyes* lateral, sessile, naked, without any lacrymal sinus. *Buccal membrane* short. *Buccal aquiferous opening* distinct.

Arms very long. *Tentacular arms* not retractile, external to the web.

Siphuncle without any superior central band or internal valve.

Shell internal, horny, elongate, slender, without any chambers.

Loligopsidæ (pars) *D'Orb. Moll. Viv. et Fos.* i. 377.

Cranchia sp. *Férussac, Mag. Zool.* 1834.

Loligopsis sp. *Férussac, Mag. Zool.* 1834.

Synopsis of the Genera.

CHIROTEUTHIS. Arms free; cartilages of the mantle dilated below. Rings of cups contracted in the middle. Shell slender, dilated at each end.

HISTIOTEUTHIS. Three upper pairs of sessile arms webbed nearly to the end; cartilages of mantle linear, elongate. Rings of cups convex externally. Shell broad, pennate.

Shell narrow, rather dilated at each End. Base of long Arms with scattered Cups.

1. CHIROTEUTHIS.

Body elongate, conical. Fins on the hinder part of the sides of the back.—*Head* elongate, depressed, narrowed behind the eyes, without any cervical crest. Eyes large, prominent; aperture oval, not contractile. Buccal membrane thin, seven-lobed; buccal aquiferous apertures six, distinct.—*Arms* very long. Sessile ones conical, subulate, rounded, webbed at the base; cups very small globular, oblique, strongly peduncled, in two alternate lines; ring very oblique, with a circular depression. Tentacular arms exceedingly long, very slender, cylindrical; with small alternate cups scattered on their whole length. Club lanceolate, terminating in a fleshy cup; sides with a broad membrane; cups in four rows, on long cylindrical peduncles swollen at the end, and bearing a second pedicle carrying a hood-like horny ring edged at the base, with a lateral aperture armed with teeth.—*Siphuncle* short, without superior band or valve. The cartilage on the side of the siphuncle oval, transverse, with a large tubercle on each side of the oblong cavity; mantle with an oblong cartilage, larger beneath, and with a pit on each side to receive the tubercles on the siphuncle.—*Shell* internal, horny, very slender, slightly dilated into a narrow lanceolate expansion at each end.

Chiroteuthis D'Orb. *Céphal. Acétab.* 1839, *Ann. Sci. Nat.* xvi. 1841; accidentally confounded with *Cirroteuthis* Gray, *P. Z. Soc.* 1847, 205.

Chiroteuthis sp. *Féruss. Mag. Zool.* 1834; *Verany, Acad. Torino.*

1. CHIROTEUTHIS VERANYI.

Body smooth: fins semicircular, together heart-shaped. Head large. Sessile arms very large, rounded, acuminate, unequal; order of length, 4, 3, 2, 1; rings of the three upper pairs with very close acute teeth, longest on the broader side. Tentacular

arms twelve times as long as the body, with a lanceolate club. Shell very narrow; the lowest part with the longest and broadest expansion.

Loligopsis Coindetii Verany, MS.

Loligopsis Veranyi Féruss. Mag. de Zool. 1834, t. 65., *Règne Animal de Cuv.* t. 6.

Chiroteuthis Veranyi D'Orb. Céph. Acét. Calmars, t. 2. t. 4. f. 11—23. 1839, *Moll. Viv. et Fos.* i. 377. t. 24.

Hab. Mediterranean.

2. CHIROTEUTHIS BONPLANDI.

Body elongate, conical. Head moderate. Fins half the length of the body, together rhomboidal. Sessile arms subulate, with rounded tubercles at the end, unequal; order of length, 3, 2, 1, 4. Shell very narrow in the middle; narrow above, and dilated below.

Chiroteuthis Bonplandi D'Orb. Moll. Viv. et Fos. i. 378. 1845.

Loligopsis Bonplandi Verany, Acad. di Torino, i. 2d ser. t. 5. 1837.

Hab. Atlantic Ocean.

B. Shell lanceolate, pennate.

2. HISTIOTEUTHIS.

Body short, cylindrical, pointed behind; cartilage on siphuncle with a deep groove, with raised edges; those on the mantle longitudinal, larger below. Fins large, rounded, on the sides of the ends of the body; nicked before and behind.—*Head* very large, cylindrical, without any cervical crest. Eyes large, naked, not prominent, with an external aperture without any lacrymal sinus or contractile eyelids. Buccal membrane broad, extensible, six-lobed, without any cups. Four buccal aquiferous openings, one on each side of the base of the upper and lower arms, and two brachial openings on the outside of the tentacular arms; no anal opening.—*Sessile arms* large, voluminous, rather unequal; the three upper pairs united by a web near to the end, lower pair free; cups very small, oblique, fleshy, peduncled, in two rows very far apart. Tentacular arms outside of the web; club lanceolate, finned externally, and with a membrane on the sides; cups in six alternate lines, rather oblong, rings armed with acute teeth.—*Siphuncle* very short, —*Shell* horny, flexible, lanceolate, pennate; expansion, narrow above, with a longitudinal central ridge.

Histioteuthis D'Orb. Céphal. Acétab. 1839, *Ann. Sc. Nat.* xxi.

1841, *Moll. Cuba*, i. 7. 1841, *Moll. Viv. et Fos.* i. 79. t. 253. 1848; *Desh. in Lamck. Hist.* xi. 237.; *Gray, Proc. Zool. Soc.* 1847, 205.

Histioteuthis Verany, Cat. Invert. 17. 1846.

Onychoteuthis sp. Féruss. Mag. de Zool. 1835, p. 66.

1. HISTIOTEUTHIS BONELLIANA.

Body short, obtuse. Head very large; and head, body, and arms, studded with tubercles. Sessile arms subequal, fleshy. Fins micircular, broad. Shell broad, lanceolate.

Onychoteuthis Bonelliana Féruss. Mag. de Zool. 1835, p. 66.

Histioteuthis Bonelliana D'Orb. Céph. Acét. Cranchies, t. 2. 1839, *Coll. Viv. et Fos.* i. 380. t. 25.

Sea. Mediterranean, near Nice. *Verany.*

2. HISTIOTEUTHIS RUPPELLII.

Body, head, and arms granular. Head large. The second and third pairs of arms longer, first and fourth shorter. Cups blue. Fins ———.

Histioteuthis Ruppellii Verany, Congress. Milano, e Cat. Anim. Genova, 17. 28. n. 53. t. 3.

Sea. Genoa.

Perhaps only a variety of the former.

FAM. IV. ONYCHOTEUTHIDÆ.

Body elongate, fleshy. Fins posterior, dorsal, angular, together comboidal. Mantle supported by cartilaginous tubercles and cups in front. Anal aquiferous opening distinct.

Head moderate, cylindrical. Eyes lateral, naked, with a deep lacrymal sinus at the upper edge. Buccal membrane large. Ears with a well marked longitudinal crest.

Clawed arms with a rounded group of small sessile cups at the extremity of the club.

Club with one or two bands on each side above, and with a distinct internal valve.

Internal, horny, lanceolate, without any air-chambers.

Onychoteuthidæ (pars) Owen, Trans. Zool. Soc. ii. 1838.

Onychoteuthidæ D'Orb. Moll. Viv. et Fos. i. 382. 1848.

Onychoteuthidæ Gray, Proc. Zool. Soc. 1847, 206.

*Synopsis of Genera.**A. Tentacular and sessile Arms with claw-like Hooks.*

1. *ENOPLOTEUTHIS*.—Fins subterminal, dorsal, rhombic. Sessile arms with hook only. Shell pennate, lanceolate.
2. *ANCISTROCHEIRUS*.—Fins occupying the whole side of the back, rhombic. Sessile arms with hooks only. Shell dilated at each end.
3. *ABRALIA*.—Fins subterminal. Sessile arms with hooks at the base and cups at the tip. Shell lanceolate, concave on the edges.
4. *OCTOPODOTEUTHIS*.—Fins on the hind part of the back, roundish. Shell narrow.
5. *ACANTHOTEUTHIS*.—Fins —————? Shell narrow, gradually dilated above.

B. Tentacular Arms with Hooks. Sessile Arms with Cups and Rings.

6. *ONYCHOTEUTHIS*.—Club of tentacular arm with hooks. Shell lanceolate, pennate, sides thin.
7. *ANCISTROTEUTHIS*.—Club of tentacular arm with hooks only. Shell narrow, rather dilated in front, with one central and two marginal ribs.
8. *ONYCHIA*.—Club of tentacular arm with hooks on the centre, and with two rows of small cups on each side. Shell lanceolate, pennate.

C. Tentacular and sessile Arms with Cups and horny Rings.

9. *OMMASTREPES*.—Fins rhombic, posterior, caudal. Internal cartilage of mantle dilated below. Shell narrow, dilated in front with one central and two marginal ribs.

*A. Tentacular and sessile Arms furnished with Hooks.*1. *ENOPLOTEUTHIS*.

Body elongate, with regular longitudinal lines of minute tubercles beneath; sometimes produced into a more or less elongate acute tail. Fins angular, on the hinder part of the back; together rhombic.—*Head* rather large, subcylindrical. Buccal brane eight-lobed; two upper bands distinct, and ins between the two dorsal arms.—Sessile arms with a series of closed horny claw-like hooks, enlarged at their base,

covered with a closely fitting membrane. Tentacular arms slender, feeble, scarcely clubbed, armed with hooks only.—*Siphuncle* with two superior central bands.—*Shell* pennate, lanceolate, sometimes sinuous at the side, and without any appendix at the tip; the central ridge narrow, keeled, produced in front.

Enoplotheuthis D'Orb. Moll. Viv. et Fos. i. 398., Céph. Acét. 1839; Gray, Proc. Zool. Soc. 1847, 206.

lepto sp. Leach, Zool. Misc. 1817.

psychotheutis sp. Férussac, Tab. Syst. 26. 1821.

psychoteuthis sp. Férussac & D'Orb. Tab. Céphal. 1825; Verany, Mem. Acad. Torino, 1837.

amastrophes (pars) Gray, Proc. Zool. Soc. 1847, 206.

* *Body prolonged, and subvesicular behind; tubercular beneath.*

1. ENOPLOTEUTHIS SMITHII.

Head with numerous lines of small tubercles, one series extending up each side of the back of the arms. Body smooth above, with seven longitudinal lines of small rounded granules beneath; the lateral lines irregular. Sessile arms square; the dorsal pair slightly margined on the outer edge; the second pair with a broad membranous edge; hooks about sixty. Tentacular arms, lower oblong group of ten small cups, half open, rest closed; hooks ten, in two alternating lines. Shell lanceolate, rather broad, outer edge regularly arched.

lepto Smithii Leach, Tuckey's Expedition, Appen. 411. t. . f. adult, 1817, Zool. Miscell. iii. 141. sp. 3.; Blainv. Dict. Class. 437., Journ. de Phys. xcvi. 126.; Féruss. Dict. Class. iii. 67.

psychoteuthis Smithii Féruss. D'Orb. Tab. Méth. Céph. 61. sp. 9. 1825, Céphal. Acéph. t. 2. f. 3. cop. from Leach.

lepto leptura Leach, Zool. Miscell. iii. 141 sp. 21. p. 3. 1817; Tuckey's Exped. Congo, App. iv. 411. t. f. 1817, Journ. de Phys. lxxxvi. 395. t. i. 3. 5.; Blainv. Dict. Sc. Nat. xxvii. 137., Journ. de Phys. xcvi. 126.; Féruss. Dict. Class. iii. 67. n. 9., Atlas, t. f. 3. all from Leach.

psychoteuthis leptura Férussac, Céphal. Acét. Onychoteuthis, t. 2. f. 4. 1828, cop. from Leach.

psychoteuthis leptura Férussac, Céph. Acét. Onychoteuthis, t. 6. 11. f. 6—14. 1839.

enoplotheuthis leptura D'Orb. & Féruss. Moll. Céph. Acét. Onychoteuthis, t. 12. f. 20. 1839; D'Orb. Moll. Viv. et Fos. i. 399. t. 27. f. 1—9., Paléon. univer. t. 17. f. 1—9.

hab. Atlantic Ocean.

a. W. Africa, lat. 1° 8' N., long. 26° 30' E. Adult. In

spirits. Hinder part of body produced, subvesicular. Presented by J. Cranch, Esq., Congo Expedition.

Loligo Smithii Leach.

b, c. West Africa, lat. $1^{\circ} 8' N.$, long. $26^{\circ} 30' E.$ Half-grown, not good state. In spirits. Hinder part of body suddenly contracted into a short tail. Presented by J. Cranch, Esq., Congo Expedition.

Loligo leptura Leach.

d. West Africa, lat. $1^{\circ} 8' N.$, long. $26^{\circ} 30' E.$ The head and arms only. Presented by J. Cranch, Esq., Congo Expedition.

2. ENOPLOTEUTHIS MARGARITIFERA.

Body elongate. Fins rhombic, about two-thirds the length of the body, acute on the sides. Eyes with five round tubercles on the ventral side. Sessile arms rounded behind, not finned; the third and fourth pairs much thicker. Tentacular arms scarcely enlarged above, subulate, and unarmed at the tip, with a small round group of four or five cups at the base, and three or four small hooks in the middle. Shell broad lanceolate, thin, transparent.

Enoplateuthis margaritifera Rüppell, *Giornale del Gabin. di Messina*, xxvi. 1844, 2. f. 1.

Hab. Sicily, Messina. Rüppell.

a, b. Messina. In spirits. From Dr. Rüppell's Collection.

c. The shell of *a.* in spirits.

3 ENOPLOTEUTHIS VERANY.

Body conical. Fins rhombic, half as long as the body, large angular on the sides. Second pair of arms finned on the outer side.

Enoplateuthis Verany Rüppell, *Giorn. del Gabin. di Messina*, xxvi. 1844, 3. f. 2.

Hab. Genoa.

4. ENOPLOTEUTHIS OWENII.

Body conical, pointed behind. Fins rhombic, more than half the length of the body, nicked in front, rounded on the sides.—Rosy white.

Enoplateuthis Owenii Verany, *Congress. di Napoli, Cat. Ann. Invert. Genova*, 17. 29. n. 54. t. 6. f. 2, 3.

Hab. Genoa. Perhaps the same as *E. Verany*.

** *Body unknown.*

5. ENOPLOTEUTHIS UNGUICULATA.

Sessile arms with hooks on the whole of its length.

Large Sepia Banks, *Voy. Cook*, 1st *Voy.* ii. 301.

Sepia unguiculata Molina, *Saggio sul Stor. Nat. del Chili*, 199. 1789; *Gmel. Syst. Nat.* edit. 13. p. 3150.; *Turton, Syst. Nat.* iv. 119.; *Bosc, Buffon, de Deterv.* v. 47. t. 1.; *Leach, Tuckey's Exped. Congo*, 411. note.

Le Poulpe unguiculé Montfort, *Buff. de Sonnin. Moll.* iii. 99. 1802.

Loligo unguiculata Blainv. *Dict. Sc. Nat.* xxvii. 140. 1823, *Journ. de Phys.* xcvi. 128.; *Féruss. D'Orb. Tab. Méth. Céph.* 61., *Ann. des Sc. Nat.* iv.

Onychoteuthis Molinae Lichtenst. *Isis*, 1818, p. 1592. n. 2.

Enoplotheuthis Molinae D'Orb. *Moll. Viv. et Fos.* i. 402.

Hab. Pacific Ocean. A sessile arm in Mus. Col. Surg. London.

*** *Fossil Species.*

6. ENOPLOTEUTHIS SUBSAGITTATA.

Loligo subsagittata Munster, *Taschenb.* 1836, 582. 1839, t. 375., *Beitrag. Petref.* 107. t. 10. f. 3.

Enoplotheuthis subsagittata D'Orb. *Paléont. univ.* t. 19., *Paléont. étrang.* t. 13., *Moll. Viv. et Fos.* i. 399.

Hab. Upper Oxford. Lithographic stone.

2. ANCISTROCHEIRUS.

Body subcylindrical. Fins occupying nearly the whole length of the sides of the back. — *Sessile arms* very large, long, rounded externally; hooks in two indistinct alternate lines; no cups. Tentacular arms long, moderate; hooks elongated. — *Shell* narrow, lanceolate, central groove very broad, slightly convex, gradually produced at the end.

Enoplotheuthis sp. D'Orb. *Céph. Acét.* 1839, *Moll. Viv. et Fos.* 402.

Onychoteuthis sp. D'Orb. *Céph. Acét.* 1835.

1. ANCISTROCHEIRUS LESUEURII.

Body elongated, acuminate, produced, with regularly disposed tubercles underneath. Fins triangular. Arms elongate. Shell narrow, lanceolate; central groove very broad, shallow.

Onychoteuthis Lesueurii Féruss. & D'Orb. *Céph. Acét.* Onych. v. 11. t. 1—5. animal, 1835.

Enoploteuthis LeSueurii D'Orb. & Féruss. *Céph. Acét. Onych.* t. 14. f. 4—10. details, 1839; *D'Orb. Paléont. univ.* t. 17. f. 10., *Paléont. étrang.* t. 14. f. 10., *Moll. Viv. et Fos.* i. 402. t. 27. f. 10.

Hab. Indian Ocean.

3. ABRALIA.

Body smooth above, granular beneath, with scattered larger tubercles. — *Head* granular. — *Sessile arms* elongate, with a single series of alternating hooks at the base, and a double row of hemispherical cups at the tip. *Tentacular arms* long, slender; club distinct, with a few long acute hooks alternating with a series of cups, and with two rows of cups only at the tip. — *Shell* lanceolate, sinuous at the edge near the tip; central ridge narrow, keeled, and produced above.

Enoploteuthis sp. *D'Orb. Céph. Acét.* 1839, *Moll. Viv. et Fos.* 402.
Onychoteuthis sp. *D'Orb. Céph. Acét.* 1835.

1. ABRALIA ARMATA.

Body elongate, smooth above, minutely tuberculated underneath; the larger tubercles regularly disposed. *Fins* triangular, together very broadly lanceolate, terminal. *Sessile arms* slender; the third and fourth pairs with two marginal series of small tubercles; second, third, and fourth pairs crested externally. *Tentacular arms* slender, basal group of three or four cups; hooks four, long, acute. *Shell* lanceolate, sinuated at the sides near the top.

Onychoteuthis armata Quoy & Gaim. *Voy. Ast. Zool.* ii. 84. t. 5. f. 14—22. 1833; *Cuv. Règ. Animal, Illust.* t. 2.

Enoploteuthis armata D'Orb. *Céph. Acét. Onychot.* t. 9. f. 2. 6. 14. f. 11—14. details, 1839, *Paléont. univ.* t. 17. f. 11, 12., *Paléont. étrang.* t. 14. f. 11, 12., *Moll. Viv. et Fos.* i. 404. t. 27. f. 11, 12.

Hab. Indian Ocean, Moluccas.

2. ABRALIA MORISII.

Body conical, smooth, not enlarged behind. *Fins* very large, occupying two thirds of the length, triangular, together rhomboidal, strongly nicked in front. *Head* large, sessile. *Shell* lanceolate, broad, somewhat sinuated on the sides. *Arms* unequal, the lower ones longest.

Enoploteuthis Morisii D'Orb. *Moll. Viv. et Fos.* i. 401.

choteuthis *Morisii* Verany, *Mem. del Acad. Torino*, t. 1. t. 4. 837).

. North Atlantic Ocean.

4. OCTOPODOTEUTHIS.

ly conical, tapering behind. Eyes naked? Skin round the es contractile? Fins large, rounded on the hinder part of the ack, separated by a notch in front, united behind. Mantle ith two oblong ridges inside, and with two grooves on the base the siphuncle, free on the back, with central ridge fitting into cervical groove. — Sessile *arms* cylindrical, curled at the end; ith a double series of small, nearly sessile, subcylindrical cups, med with short curved hooks. Tentacular arms very short; ub small. — *Siphuncle* conical, with two medial superior bands. - *Shell* cartilaginous, very slender, as long as the back.

opoteuthis *Rüppell & Krohn* in *Giorn. del Gabinetto di Messina*, xvi. 1844, 6.

opoteuthis *Rüppell*, *MS.* 1845; *Gray*, *Proc. Z. Soc.* 1847, 05. n. 795.

ania *Krohn*, *Erichson*, *Arch.* 1847; *Verany*, *Cephal. ex Sicilia*, t. i.

1. OCTOPODOTEUTHIS SICULA.

sile arms rounded externally; the third pair rather the trongest. Fins rounded, about three fourths the length of the ody, wider than the length of the body, continued over the ack, with an acute notch behind, a rounded one above.

opoteuthis *Sicula* *Rüppell & Krohn*, in *Giorn. del Gabinetto i Messina*, xxvi. 1844, 6.

ania *Sicula* *Krohn*, *Erichson*, *Arch.* 1847, t. . f. .; *Verany*, *Cephal. ex Sicilia*, t. 1. f. 4.

. Sicily.

a. Sicily. In spirits. From Dr. Edward Rüppell's Collec- tion.

5. ACANTHOTEUTHIS.

sil. *Animal* elongate, cylindrical. Fins terminal, short, angular. - *Arms* ten, rather unequal, with two lines of hooks. — *Shell* in- ernal, horny, elongate, tapering, broad above, pointed behind, ithout any terminal appendix, and with a central longitudinal roove gradually becoming wider and less evident above.

- Kalæno *Munster*, 1836, not *Munster*, 1842; *D'Orb. Paléont. Franç.* 1842, *Moll. Viv. et Fos.* i. 162.
 Acanthoteuthis *Wagner*, 1839; *D'Orb. Moll. Viv. et Fos.* i. 407, 1847, *Desh.* in *Lamck. Hist.* xi. 238.
 Onychoteuthis sp. *Munster*, 1837.
 Loligo sp. *Rüppell*, 1829.

1. ACANTHOTEUTHIS PRISCA.

Body elongate, subcylindrical. Fins terminal, angled. Shell depressed, three-keeled, conical.

- Loligo priscus* *Rüppell*, *Abbild. und Besch.* 8. t. 3. f. 1. 1829.
Onychoteuthis angusta *Munster*, *Lehrb.* 404. 458. 1830, 250-630. 1836, 252. 1837.
Kelæno spinosa *Munster*, *MS.* 1836.
Kelæno Ferussacii *Munster*, *MS.* 1836.
Kelæno sagittata *Munster*, *MS.* 1836.
Onychoteuthis spinosa *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis Ferussaci *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis sagittata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis subovata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis tricarinata *Munster*, *Lehrb.* 252. 1837.
Onychoteuthis lata *Munster*, *MS.*
Kelæno speciosa *D'Orb. Paléont. Franç.* i. 140. n. 35. t. 23. f. 1-4. 1842.
Acanthoteuthis Ferussacii *Munster*, *Beitrag.* i. 104. t. 10. f. 1. 1839; *Chenu. Leçon. élém. H.N.* 238. f. 761.
Acanthoteuthis Lichtensteinii *Munster*, i. 105. t. 10. f. 2. 1839.
Acanthoteuthis speciosa *Munster*, *Beitr.* i. 105. t. 9. 1839.
Acanthoteuthis brevis *Munster*, *Beitr.* v. t. 1. f. 3. 1842.
Acanthoteuthis prisca *D'Orb. Paléont. univ.* t. 19, 20, 21. 1845. *Paléont. étrang.* t. 16, 17, 18., *Moll. Viv. et Foss.* i. 409. t. 28. *Fos.* Upper Oxford Clay, Lithographic stone.

B. *Cup of tentacular Arms with claw-like Hooks; of sessile Arms with Rings.*

6. ONYCHOTEUTHIS.

Body elongate, subcylindrical, smooth, acuminate behind. *Mantle* with an elongated, narrow, prominent, longitudinal ridge, fitting into a similar groove on the base of the siphuncle. *Fins* terminal, very broad, together rhomboidal.—*Head* large, rather depressed, with three or eleven longitudinal ridges, and edged behind by a transverse ridge. *Eyes* large, lateral. *Buccal membrane* extensile, seven-lobed, without cups. *A brachial aquis-*

rous pore on each side, between the third and fourth pairs of arms. Six buccal pores and an anal pore above the siphuncle. — Sessile arms angular; third or fourth pair with a keel or fin; cups in two alternating lines; rings convex and toothless. Tentacular arms partly retractile, strong; club enlarged, with a rounded group of small sessile cups at each end, and two series of claw-like hooks, the outer series largest. — *Siphuncle* very short, lodged in a cavity, with two superior muscular bands. — *Shell* lanceolate, pennate, as long as the back; tip acute; end produced, narrow; sides dilated, thin, with a central longitudinal keel contracted at the end.

Onychoteuthis (pars) *Licht. Berl. Acad.* 1818; *Isis*, 1819, 1591. 1820; *Blainv. Malac.* 1825; *Desh.* in *Lamch. Hist.* xi. 237.; *D'Orb. Moll. Viv. et Fos.* i. 386.

Sepia sp. *Fabricius, Faun. Groenl.* 359.; *Molini.*

Loligo sp. *Leach, Blainville, LeSueur, Ann. Sci. Philad.*

Onychia sp. *LeSueur, Ann. Sci. Philad.* ii. 99. 1821, ii. 296. 1822.

Onyckia *Lesson, Berthold*, 1827?; *Latr. Fam. Nat.* 1825, not *Hübner*, 1816, nor *Walker*, 1835.

Ancistrochirus *Leach, MS. Brit. Mus.* 1817.

Onychotheuthis *Férussac, Tab. Syst.* 24. 1821.

1. ONYCHOTEUTHIS BANKSII.

Body very elongate, cylindrical, acuminate behind. Head with eleven longitudinal small prominent ridges. Fins rhomboidal. Sessile arms conico-subulate, unequal; in length, 2, 3, 4, 1; cups with a fleshy excrescence, compressed, pear-shaped. Tentacular arms very extensile, apical, armed with a double series of hooks; the basal group consisting of about seven or eight open and seven or eight not pierced cups, the apical group of sixteen or seventeen cups all open; hooks twenty to twenty-two in two rows, those of the outer row largest.

Loligo Banksii *Leach, Zool. Miscell.* iii. 141. sp. 4. 1817; *Tuckey's Voy. to Congo*, App. iv. 411. sp. 1.; *Blainv. Dict. Sc. Nat.* xxvii. 137., *Journ. de Phys.* lxxxvi. 125.; *Féruss. Dict. Class.* 67. n. 8.

Ancistrochirus Banksii *Leach, MS. B. Mus.* 1817.

Anichoteuthis Banksii *Férussac, Tab. Céph.* 61. 1825.

Onychoteuthis Bergii *Lichtenst. Zool. Mus. des Univ. zu Berlin*, p. 1592. n. 4. t. 19. f. a. 1818; *Féruss. D'Orb. Tab. Céph.* n. 5. p. 61.; *D'Orb. Moll. des Antilles*, i. 46. n. 12.; *D'Orb. et Féruss. Céph. Acét. Onychoteuthis*, t. 5. f. 1—9. from *Licht.*

Loligo Bergii *Blainv. Dict. Sc. Nat.* xxvii. 138. 1823, *Journ. de Phys.* lxxxvi. 126.; *Féruss. Dict. Class.* iii. 67.

Sepia loligo *Fabricius, Faun. Groenl.* 359.

- Dinten-Fish Crantz, *Hist. von Groenl.* 134.
 Onychoteuthis Fabricii Lichtenst. *Isis*, 1818, t. 19.; *Féruss. D'Orb. Céph.* 61. n. 10.
 Loligo Fabricii Blainv. *Dict. Sc. Nat.* xxvii. 126. 1823.
 Onykia angulata LeSueur, *Journ. Acad. Philad.* ii. 99. t. 9. f. 3. 296. t. 178. on a figure, 1821.
 Loligo angulatus *Féruss. Dict. Class.* iii. 67. 1823.
 Onychoteuthis angulata *Féruss. Céph. Acét. Onych.* t. 1. 1825; *D'Orb. Tab. Céph.* 60. n. 2., *Voy. Amér. Mérid. Mol.* 42.; *Guérin, Icon. Règ. Anim.*
 Loligo felina Blainv. *Dict. Sc. Nat.* xxvii. 139. 1823, *Journ. de Phys.* lxxxvi. 125.
 Onychoteuthis felina *Féruss. D'Orb. Tab. Céph.* 60. n. 4. 1825.
 Onychoteuthis Molinae Leach, *Berl. Trans.* 1818, t. 4. copied O. Bergi *Féruss. Céph. Acét. Onyth.* t. 5.
 Loligo uncinatus Quoy & Gaim. *Voy. Uranie, Zool.* i. 410. t. 66. f. 7. 1838.
 Onychoteuthis uncinata *Féruss. D'Orb. Tab. Céph.* 60. n. 3. 1825.
 Onychoteuthis Lessonii *Féruss. D'Orb. Tab. Céph.* 61. n. 6. 1825, *Lesson, Voy. de la Coq.* t. 1. f. 3. from a drawing.
 Onychoteuthis Fleurii Renaud, *Lesson, Centurie Zool.* 61. t. 17.; *Féruss. Céph. Acét. Onyth.* t. 9.

Hab. Atlantic and Indian Oceans.

- a. Africa. Small. In spirits. Presented by J. Cranch, Esq., Congo Expedition.
 L. Banksii Leach, 1817.

- b. The shell of a dry.
 Ancistrochirus Banksii Leach, *MS.* 1817.

2. ONYCHOTEUTHIS BARTLINGII.

Body elongate; back with a central transparent line over the keel of the shell. Fins posterior, rhombic, angular. Sessile arms slender; dorsal pair rounded externally, with a slight fin on the upper part; the second, third, and fourth pairs finned on the outer side nearly the whole length. Tentacular arms with six large hooks. Shell dark brown, lanceolate, pennate, with a short central keel above and ridge beneath, thin.

- O. Bergii Licht. ? *Féruss. Céph. Acét. Onyth.* t. 7.
 Loligo Bartlingii LeSueur, *Jour. Acad. Phil.* 95. t. cop. *Féruss. Céph. Acét.* t. 3.
 Onythoteuthis Bartlingii *Féruss. Céph. Acét. Onyth.* t. 3.
 Onythoteuthis Banksii (pars) *D'Orb. Moll. Viv. et Fos.* i. 386. t. 26. f. 1. 7. from *Féruss. Céph. Acét.* t. 7.
 Onythoteuthis LeSueurii *Féruss. Céph. Acét.* t. 4. from LeSueur's specimen.

Hab. Indian Ocean.

- a. Borneo. ? In spirits. Half-grown. Presented by Capt. Sir Edward Belcher, C.B. R.N.
- b. Shell of a.
- c. New Zealand. In spirits. Adult. Presented by A. Sinclair, M.D. R.N.
- d. Shell of c.

7. ANCISTROTEUTHIS.

Body smooth. — Tentacular *arms* with a round group of small cups with rings at the base and apex of the club; and with two alternating series of hooks; the upper series the largest. — *Shell* horny, linear, very narrow, gradually widening to the front or upper end; sides thickened on the edge; apex conical, long, and obliquely produced, horny. — Otherwise like *Onychoteuthis*.

* *Body* smooth.

1. ANCISTROTEUTHIS LICHTENSTEINI.

Head large, with eight longitudinal ridges. Body elongate, narrowed posteriorly, produced. Fins triangular, together rhomboidal. Sessile arms subulate, unequal; in length, 4, 3, 2, 1; cups very much crowded; rings with entire edges; dorsal pair rounded behind; second pair slightly; third pair broadly webbed in the middle, externally; fourth pair webbed externally at the base. Tentacular arms; the basal group of cups twenty-one, about half closed; the apical group sixteen or seventeen, all open, and with rings; hooks twenty-two. Shell depressed, narrowed, transparent; apex longly produced, solid, cartilaginous, compressed.

Onychoteuthis Bellonii Féru. & D'Orb. *Céph. Acét.* 1835.

Onychoteuthis Lichtensteini Féru. *MS.* 1834; *Féru. et D'Orb. Céph. Acét. Onych.* t. 8. anim., t. 14. f. 1—3. shell, 1839; *D'Orb. Moll. Viv. et Fos.* i. 391. t. 26. f. 8—12.

Hab. The Mediterranean, near Nice.

- a. Mediterranean, Messina. In spirits. Adult.
- b. The shell of a.
- c. Mediterranean. In spirits. Adult. Presented by P. B. Webb, Esq.

2. ANCISTROTEUTHIS KROHNII.

Tentacular arms short; club with a series of hooks on one, and of small cups on the other, margin. Shell linear, narrow at the base, margined on the edge, rather wider above the middle; the apex with a conical produced tip.

Onychoteuthis Krohnii Verany, Ceph. ex Sicilia, t. 1. f. 3.

Hab. Sicily.

** *Body shagreened.*

3. ANCISTROTEUTHIS DUSSUMIERI.

Body elongate, subcylindrical; very finely shagreened with very crowded, small, acute tubercles. Fins short, together rhomboidal. Sessile arms unequal; in length, 2, 4, 3, 1; with a longitudinal groove. Tentacular arms very slender, without any club, with thirty hooks in two series; rings of cups oblique, entire. Shell narrow; the apex with a very long conical very acute solid horny tip.

Onychoteuthis Dussumieri D'Orb. Moll. Viv. et Fos. i. 392; D'Orb. et Féruss. Céph. Acét. Onych. t. 13. 1839.

Hab. Indian Ocean, 200 miles north of Mauritius.

8. ONYCHIA.

Body red, spotted.—Tentacular arms scarcely enlarged at the end, with two longitudinal series of claw-like hooks in the centre of the club, and a row of pediceled cups on each side furnished with horny rings.—*Shells* lanceolate, pennate, dilated above and narrow in front, with a central ridge.—Otherwise like *Onychoteuthis*.

Onychia LeSueur, Jour. Acad. N. S. Philad. i. 98. 1821, ii. 296. 1822.

Onychia Latr. Fam. Nat. 1825; Berthold, 1827; Gray, Proc. Zool. Soc. 1847.

Onychoteuthis sect. ii. *D'Orb. Moll. Viv. et Fos. i. 386.*

Onychoteuthis sp. *Férussac, Tab. Syst. 28. 1821; D'Orb. et Féruss. Céph. Acét. 1839.*

Sepiola sp. *LeSueur, l. c.*

Cranchia Péron.

Cranchia sp. *Férussac, Dict. Class. H. N. v.*

Loligo sp. *Péron.*

Sepia sp. *Oken.*

Sepiola sp. *LeSueur.*

* *Fins* terminal, very short. *Cups* subequal.

1. ONYCHIA CARDIOPTERA.

Body large, oblong, narrowed, and prolonged behind, variegated with red spots; fins round, terminal, together subrhomboidal. Sessile arms unequal; in length, 3, 2, 4, 1; cups in two alternating lines. Tentacular arms long, scarcely enlarged at the end. Shell pennate, rather broad, sides rounded.

- Coligo* Cardioptera Péron, *Voy. Atlas*, t. 60. f. 5. 1804; *Blainv. Journ. de Phys.* 123., *Dict. des Sc. Nat.* xxvii. 135.
- Sepiola* Cardioptera LeSueur, *Journ. Acad. Nat. Sc. Philad.* ii. 100. 1821.
- Cranchia* Cardioptera Féruss. *Dict. Class. Atlas*, t. 5. 1823; *D'Orb. Tab. Méth. Céph.* 58.; *Féruss. et D'Orb. Céph. Acét. Cranchie*, t. 1. f. 2, 3. cop. Péron; *D'Orb. Voy. Am. Mérid. Moll.* 34.
- Sepia* Cardioptera Oken, *Lehrb. des Zool.* 343. n. 5.
- Onychoteuthis* Cardioptera *D'Orb. Moll. des Antilles*, i. 53. n. 13. 1838, *Moll. Viv. et Fos.* i. 389.
- Onychia* Caribæa *LeSueur, Journ. Acad. Nat. Sc. Philad.* ii. 98. t. 9. f. 1, 2. 1821.
- Coligo* Caribæa *Blainv. Dict. Sc. Nat.* xxvii. 139. 1823, *Journ. de Phys.* lxxxvi. 127.; *Féruss. Dict. Class.* iii. 67. *Atlas*, f. 4.
- Onychoteuthis* Caribæa *Féruss. Céph. Acét. Onyph.* t. 5. f. 4. 7. from *LeSueur*; *D'Orb. Tab. des Céph.* 60., *Moll. des Antilles*, i. 57. n. 14.
- Onychoteuthis* *Leachii* *Féruss. Céph. Acét. Onyph.* t. 10. f. 1. 4., shell represented as expanded at each end.

Hab. Atlantic Ocean.

** *Fins dorsal.* *Cups of lateral Arms unequal.*

2. ONYCHIA PLATYPTERA.

Body cylindrical, smooth; fins elongate, triangular, together narrow lozenge-shaped. Sessile arms long, unequal; in length, 3, 4, 2, 1; cups very unequal, especially of the lateral arms. Tentacular arms short, not enlarged at the end; basal group of twenty-two cups half open, rest closed; hooks twelve. Shell broad, lanceolate; apex with a conical, horny, compressed appendix at the tip.

Onyph. platyptera *D'Orb. Voy. Am. Mérid. Moll.* 41. t. 3. f. 8. 11. 1835; *D'Orb. et Féruss. Céph. Acét. Onyph.* t. 10. f. 8-10. t. 14. f. 16-22. details; *D'Orb. Moll. Viv. et Fos.* i. 393. t. 26. f. 13.

Onyph. peratiptera *D'Orb. Voy. Am. MÉR.* 39. t. 3. f. 5-7. cop. 1835; *Féruss. et D'Orb. Céph. Acét. Onyphoteuthis*, t. 10. f. 5. 7.

Hab. Coast of Chili. Indian Ocean.

C. Cups of tentacular and sessile Arms with horny Rings.

9. OMMASTREPHES.

Head short, cylindrical, rather depressed, rather narrowed behind the eyes, and there very prominent longitudinal ridges on the nape. Eyes very large, lateral, naked, with an oval external opening and a large lacrymal sinus. Buccal membrane very extens-

ble, seven-lobed, without cups.—*Body* elongate, cylindrical, very long, acuminate behind, truncated, square in front. Cartilages on base of siphuncle, contracted below and with a tubercle on each side, on inside of mantle enlarged, thick, and with transverse rib below. Fins posterior, terminal, very broad, together forming a transverse rhomboid. Aquiferous pores between the third and fourth pairs of arms; four buccal pores, one on each side of the base of the first pair, and one on each side between the third and fourth pair, communicating with a large cavity which surrounds the mouth; two anal pores on each side of the siphuncle, outside of the external band.—*Sessile arms* conical, subulate, upper and lower quadrangular, the others triangular, compressed, unequal; in the following order, 3, 2, 1, 4; cups very oblique, fleshy, distinct; rings oblique, toothed. Tentacular arms not retractile, short, strong, thick, with a slight longitudinal ridge, scarcely enlarged at the end, webbed at the tip; cups oblique, fleshy, in four alternate lines, two middle series large, two lateral small, with a rounded basal and apical group of small sessile cups.—*Siphuncle* lodged in a cavity, short, broad, with superior medial bands, and an internal valve above.—*Shell* horny, flexible, as long as the body, narrow, gradually wider above, with a central and two marginal ribs; apex with a hollow conical cavity, without any septa.

Living in the high seas in large troops, nocturnal; the food of Cetacea and pelagic birds.

Calamar flesches *Blainv. Dict. Sci. Nat.* 1823.

Cyceria *Leach, MS.* 1817.

Ommastrephes *D'Orb. Moll. Viv. et Fos.* i. 412. 1845; *Desh.* in *Lamck. Hist.* xi. 239; *Gray, Proc. Z. Soc.* 1847, 206.

? Peroteuthis *Ehrenb.*

Loligo sp. *Lamck., Ruppell.*

Sepia sp. *Linn.*

Onychoteuthis sp. *Munster.*

§ *Body opaque, fleshy, smooth above and below. Cups of sessile Arms equal, moderate.*

* *Second and third Pairs of sessile Arms without any membranaceous Fringe on the inner Edge of the ventral Side, but only a Series of small conical Tubercles.*

† *The tentacular Arms with eight Rows of numerous small Cups at the End near the Tip.*

1. OMMASTREPHESES SAGITTATUS.

Head large. Body elongate, cylindrical. Fins broad, together rhomboidal. Sessile arms thick, long; rings of cups variable.

Tentacular arms elongate, compressed; club scarcely enlarged, covered only with cups, the lower ones in two series, the central in four; large of central scarcely oblique, the small lateral ones very oblique; upper part with a multitude of small cups in eight rows. Shell narrow, elongate; lateral ribs largest; apical cone large.

Sepia loligo Linn. *Syst. Nat.* edit. 12. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150.; *Brug. Enc. Mèth.* t. 77. f. 12.

Sepia media Barbut, *Gen. Verm.* 75. t. 8. f. 3. 1788.

Loligo sagittata var. β . *Lamck. Mém. Soc. Hist. Nat. Paris*, 13. 1799, *Anim. s. Vert.* vii. 665.; *Blainv. Faun. Franç.* 15.; *Payrau-deau, Cat. Moll. Corse*, 173. n. 353.; *Risso, Hist. Nat.* iv. 6. n. 8.; *Guérin, Icon. Règ. Anim.* t. 1. f. 5.; *Philippi, Enum. Moll. Sic.* 241. n. 2.; *Cantraine, Nouv. Mém. Acad. Brux.* xiii. 15. n. 1.

Calmar harper Montfort, *Buff. de Sonnin.* ii. 65. t. 14. 1805.

Loligo illecebrosa LeSueur, *Journ. Acad. Philad.* ii. 95. 1821? *Blainv. Dict. Sc. Nat.* xxvii. 142., *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63. n. 5., *Céph. Acét. Loligo*, t. 7. from LeSueur.

Loligo harpago Féruss. *Dict. Class.* iii. 67. n. 3. 1823.

Loligo Brongniartii Blainv. *Dict. Sc. Nat.* xxvii. 142. [1823, *Journ. de Phys.* 1823, p. 130.; *Féruss. D'Orb. Tab. des Céph.* 63., *Céph. Acét.* t. 4. 1825.

Loligo piscatorum La Pylaie, *Ann. Sc. Nat.* iv. 319. 1825; *Féruss. D'Orb. Tab. Mèth. Céph.* 63. n. 6., *Céph. Acét. Loligo*, t. 5.

Loligo Coindetii Verany, *Mem. Acad. Sc. Torino*, t. 1. f. 4. 1837.

Ommastrephes sagittatus D'Orb. & Féruss. *Ommastrephes*, t. 1. f. 1—10. rings, &c. 1839; *D'Orb. Paléont. univ.* t. 22. f. 12—16., *Paléont. étrang.* t. 19. f. 12—16., *Moll. Viv. et Fos.* i. 418. t. 29. f. 12—16.

Hab. Atlantic Ocean, Newfoundland, used in the codfishery. Mediterranean.

†† *Tentacular Arms with Cups in four Rows, those in the Centre of the middle Part rather larger.*

2. OMMASTREPHEs EQUIPODA.

Body elongate, rather tapering behind. Fins rhombic, one third the length of the body. Tentacular arms short, naked half their length; club compressed, winged externally, with four series of regularly disposed cups, those of the sides and end equal-sized, the twentieth or twenty-second in the two central series of the middle part larger.

Loligo æquipoda Rüppell, *Giorn. del Gabin. di Messina*, xxvi. 1844.

Hab. Sicily.

a. Sicily, Messina. In spirits. From Dr. E. Rüppell's Collection.

††† *Tentacular Arms with two Series of small Cups at the Top.*

3. OMMASTREPES TODARUS.

Body short, thick, nearly cylindrical, spotted with red. Fins half the length of the body, broad, together rhomboidal. Sessile arms unequal; rings of cups with seven distant very oblique cutting teeth on the higher side. Tentacular arms robust, with cups nearly to the base; scarcely clubbed; cups at the base in two series, in the middle in four series, middle ones larger, with the rings with twenty acute teeth all round; at the top in two series of minute cups.

Sepia loligo Linn. *Syst. Nat.* edit. xii. 1095. n. 4. 1767; *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Shaw, Nat. Miscell.* t. 363.

Loligo sagittata var. a. *Lamck. Mém. Soc. Hist. Nat. Paris*, 13. 1799; *Hist. An. s. Vert.* vii. 663.; *Féruss. Dict. Class.* iii. 67. n. 2.; *Carus, Icon. Sep. Nov. Acet. Phys. Med.* xii. 318. t. 30.; *Payraudeau, Cat. desc. Moll. Corse*, n. 352.

Calmar flèche Montfort, *Buff. de Sonnin. Moll.* ii. 56. 1805.

Calmar du Brésil Montfort, *Buff. de Sonnin. Moll.* ii. 56. 1805.

Loligo todarus Rafinesque, *Préc. Découv. Som.* 1814; *Féruss. Céph. Acét. Loligo*, t. 1.

Loligo Brasiliensis Féruss. *Dict. Class.* iii. 67. n. 3. 1823.

Loligo maxima Blainv. *Dict. Sc. Nat.* xxvii. 140. 1823, *Journ. de Phys.* 1823, 129.

Ommastrephes todarus D'Orb. *Céph. Acét. Ommastrephes*, t. 2. f. 4—10. 1839, *Paléont. univ.* t. 22. f. 3. 11. t. 23. f. 5, 6., *Paléont. étrang.* t. 19. f. 3—11. t. 20. f. 5, 6, *Moll. Viv. et Fos.* i. 423. t. 29. f. 3—11. t. 30. f. 5, 6.

Hab. Mediterranean.

** *The third Pair of sessile Arms with a narrow fleshy Fin supported by cross Ribs on the inner Edge of the ventral Side; second without Rudiments of Points on the Edge.*

4. OMMASTREPES GIGANTEUS.

Body elongate, cylindrical superiorly, violet-coloured. Fins broad, occupying half the length, nicked in front, together transverse

rhomboidal, acute. Sessile arms, cups oblique, equal-sized; rings with acute teeth on the higher side, and smooth on the lower one. Tentacular arms naked one third their length; cups in two series, then in four; the eighteenth or twentieth central cup of the upper part very large, lateral one very small, longly peduncled and very oblique, the tip compressed, with a narrow triangular patch of a few small cups in three or four series at the base, and two series at the end.

Pernetti, Hist. Voy. aux Malouines, ii. 76. ? 1770.

Cepia tunicata Molina, Hist. Nat. du Chili, 173. ? 1789; *Gmelin, Syst. Nat.* edit. 13. 3151. sp. 8. ?; *Shaw, Nat. MS.* x. iv. t. 546. ? from Montfort, Sonnini.

Cepia nigra Bosc, Hist. Nat. des Vers, i. 47. ? 1802.

Palmar reticulé *Montfort, Buff. de Sonnin. Moll.* ii. 96. t. 21. ?

Ommastrephes gigas D'Orb. Voy. Am. Mérid. Moll. 50. t. 4. 1835.

Ommastrephes giganteus D'Orb. Céph. Acét. t. 1. f. 11—13. rings, 1839, *Paléont. univ.* t. 23. f. 1—4., *Paléont. étrang.* t. 20. f. 1—4., *Moll. Viv. et Fos.* i. 425. t. 30. f. 1—4.

a. Valparaiso. Young? In spirits. Mr. Bridges's Collection.

b. Shell of *a.*

5. OMMASTREPHEs SLOANIL

Body cylindrical, rather tapering behind. Fin rhombic, rather more than one third the length of the body. Sessile arms compressed; cups equal, oblique, in two rows; rings black, higher side with regular acute teeth, lower smooth; third pair acutely finned, with a narrow rayed membrane on the inner edge of the ventral side. Tentacular arms slightly keeled externally, base half-naked; cups of lower part small, in two rows, of middle four rows; the seventh pair of the central series largest; rings with distant teeth all round; of the lateral series small, longly peduncled, and very oblique; of the apical portion small, in three or four rows, the smallest one nearly sessile.

Tab. Indian Ocean.

a. New Zealand, Waitemata. Small. In spirits. Presented by A. Sinclair, M.D.

b. ? Var. ? In spirits, adult. Mus. Sloane. Fin nearly half the length of the body.

Cyberia Leach, MS. 1817.

c. ? Shell of *b.* broken, dry; taken out by Dr. Leach.

*** *The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side (prote-trice de cupule, D'Orb.), supported by radiating fleshy Rays arising from the Base of the Cups. Cups in two distinct Rows; ventral Part of the Manile free from the Head.*

6. OMMASTREPES BARTRAMII.

Body elongate, cylindrical, acuminate posteriorly, truncated anteriorly, longitudinally adorned above with a violet zone. Foot dilated, rhomboidal, acutely angled. Head short. Shell thin, elongated.

Cornet *Pernetti, Hist. Voy. aux Iles Malouines*, ii. 76. t. 11. f. 1. 1770.

Loligo Bartramii LeSueur, Journ. Acad. Philad. ii. 90. t. 7. 1811. *Féruss. Dict. Class.* iii. 67. n. 12.; *Blainv. Dict. Sc. Nat.* xvii. 141., *Journ. de Phys.* 1823, 129.; *Féruss. D'Orb. Tab. de Céph.* 63., *Céph. Acét. Loligo*, t. 2. cop. LeSueur.

Loligo sagittatus Blainv. Dict. Sci. Nat. xxvii. 140. 1823, *Journ. de Phys.* 1823, p. 128.

Loligo vitreus Rang, Mag. de Zool. 71. t. 36. 1837.

Ommastrephes Bartramii D'Orb. Voy. Am. Mérid. Moll. 55. 1833. *Moll. des Antilles*, i. 59. n. 15., *Céph. Acét. Ommastr.* t. 2. f. 11—20. rings, *Paléont. univ.* t. 22. f. 1, 2. t. 23. f. 7, 8., *Paléont. étrang.* t. 19. f. 1, 2. t. 20. f. 7, 8., *Moll. Viv. et Fos.* i. 420. t. 29. f. 1, 2, t. 30. f. 7, 8.

Cycria sepiostem Leach, MS. 1817.

Ommastrephes cylindricus D'Orb. Voy. Am. MÉR. Moll. 54. t. 3. f. 3, 4. 1835.

Hab. Atlantic Ocean, Mediterranean.

a. In spirits. _____ ?

b, c, d, e. Cape of Good Hope. In spirits. Presented by Andrew Smith, M.D.

f. _____ ? In spirits, bleached. *Mus. Leach.* The suckers in an alternating series ?

Cycria sepiostem Leach, MS. 1817.

g, h. _____ ? In spirits. *Voyage, Erebus and Terror.* Presented by Capt. Sir James Ross, C. B. R. N.

i. _____ ? In spirits. *Mus. Leach.*

j. _____ ? In spirits. Mr. Bartlett's Collection.

k. _____ ? In spirits. Presented by the Earl of Derby.

The second and third Pairs of sessile Arms with a broad membranaceous Fin on the inner Edge of the ventral Side, supported by radiating fleshy Rays. Cups compressed, so as to be in a single Series; ventral Part of the Mantle fixed to the Head.

7. OMMASTREPHEs OUALANIENSIS.

Body elongated, cylindrical. Pinnæ terminal, broad, transverse. Arms short, unequal, furnished with one row of cups. Shell elongate, narrow.

ommastrephes oualiensis D'Orb. *Moll. Viv. et Fos.* i. 427.

ligo oualiansis Lesson, *Voy. de Coquille, Zool.* 240. t. 1. f. 2. 1830; *Féruss. Céph. Acét.* t. 3.

ligo Vanicoriensis Quoy & Gaim. *Voy. Ast. Moll.* ii. 79. t. 5. f. 1, 2. 1833.

ligo brevitentaculata Quoy & Gaim. l. c. 81. 1833.

ommastrephes oceanicus D'Orb. *Céph. Acét. Calmars*, t. 21. *Ommastrephes*, t. 1. f. 14—16., rings, 1839.

ab. Throughout the Indian Ocean.

a. ———. In spirits. Mus. Leach.

b.? Cape of Good Hope. In spirits, not in a good state. Presented by the Earl of Derby.

c. South Sea. In spirits, bad state. Presented by A. Menzies, Vancouver's Voyage.

Body transparent, tubercular beneath. One or two Cups on the second Pair of sessile Arms larger.—Hyaloteuthis.

8. OMMASTREPHEs PELAGICUS.

Body elongate, subcylindrical, smooth above, with scattered opaque tubercles, in eight cross lines beneath. Fins about a quarter the length of the body, very thin, nicked in front, together transverse, rhomboidal, with rounded angles. Sessile arms triangular; cups in two alternate lines, longly peduncled. Tentacular arms very slender, scarcely clubbed, with a series of peduncled cups. Diaphanous white, red-spotted. Shell very thin, very slender, without any ribs, with a small terminal cone.

pelagica Bosc, *Buff. de Déterv. Hist. Nat. Vers*, i. 46. t. 1. f. 1, 2. 1802.

pelagica Montfort. *Buff. de Sonnin. Moll.* ii. 86. t. 19. 1805.

ligo pelagicus Féruss. *Dict. Class.* iii. 67. n. 7. 1823; D'Orb. *Tab. Céphal.* 63. n. 7, *Céph. Acét.* t. 18. f. 1, 2.

Ommastrephes pelagicus *D'Orb. Céph. Acét. Ommastrephes*, t. 1. f. 17, 18. animal, 1839, *Moll. Viv. et Fos.* i. 422.

Hab. Atlantic Ocean.

a. St. Lucia. In spirits, not good state. Presented by Miss R. Alexander.

3 § *Doubtful recent Species.*

9. OMMASTREPHEs LATICEPS.

Body subgelatinous, bluish white, red, and brown, spotted, oval elongate, ending in an acute point. Sessile arms equal. Tentacular arms with small cups. Fins thin, rounded, terminal. A young animal.

Ommastrephes laticeps *D'Orb. Moll. Viv. et Fos.* i. 428.

Loligo laticeps *Owen, Trans. Zool. Soc. Lond.* t. 21. f. 6—10. 1836.

Cranchia pellucida *Rang, Mag. de Zool.* 67. t. 94. (1837).

Hab. Atlantic Ocean, near equator.

10. OMMASTREPHEs ARABICUS.

Body round, gradually attenuating into an obtuse round tail. Fins rhomboidal, including half the body and the tail. Sessile arms with two rows of equal cups. Club of tentacular arms with five rows of cups, three middle rows largest; rings toothed. Shell narrow, cartilaginous.

Pteroteuthis arabica *Ehrenberg, Symbolæ Physicæ*, 1831.

Ommastrephes arabicus *D'Orb. Moll. Viv. et Fos.* i. 428. n. 12.

Hab. Red Sed, volcanic island of Ketumbal.

11. OMMASTREPHEs MENEGHINII.

Body ovate, conical, tapering behind. Fins posterior, half the length of the body, together oblong, rounded on the sides.

Loligo Meneghinii *Verany, Ceph. ex Sicilia*, t. 2. f. 1.

Hab. Sicily.

12. OMMASTREPHEs BIANCONII.

Body ovate, tapering behind. Fins posterior, together triangular, acute behind, and rounded at the outer upper angles. Shell narrow, lanceolate, wider above, contracted, and ending in a cone at the tip.

Loligo Bianconii *Verany, Ceph. ex Sicilia*, t. 2. f. 3.

Hab. Sicily.

13. OMMASTREPHESES ? EBLANÆ.

go Eblanæ *Ball, Proc. Roy. Irish Acad.* 1839; *Thompson, Report of the Brit. Assoc.* 1844, p. 248.; *D'Orb. Moll. Viv. et Fos.* 353.

described.

Tab. Coast of Ireland.

14. OMMASTREPHESES GRONOVII.

tacular arms half as long as the body.

ia *Gronov. Zoophyl.* 244. n. 1028. 1781.

go *Gronovii Féruisac, D'Orb. Moll. Viv. et Fos.* i. 352. 1845.

Tab. Indian Ocean.

4 § *Fossil Species of Upper Oxford Clay.*

15. OMMASTREPHESES ANGUSTUS.

ll elongate, depressed, with three ribs, dilated behind and before.

choteuthis angusta *Munster, Jahrb.* 1830, 404. 458. 1836, 250.

30. 1837, 252.

r. *Lichtensteini Munster, MS.* 1837.

r. *sagittata Munster, Jahrb.* 1837, 252. not *Lameck.*

astrepheis angustus *D'Orb. Paléont. univ.* t. 23. f. 9. 11. 1845,

Toll. Viv. et Fos. i. 415.

Coralline layer of Upper Oxford, Solenhoffen.

16. OMMASTREPHESES INTERMEDIUS.

ll elongate, conical above, convex, one-ribbed; behind narrow, lanceolate.

choteuthis intermedia *Munster, Lehrb.* 1837, 252.

m. *intermedius D'Orb. Céph. Acét.* 40. 1841, *Paléont. univ.* t.

2. f. 1., *Moll. Viv. et Fos.* i. 416.

Lithographic slate, Solenhoffen.

17. OMMASTREPHESES COCHLEARIS.

ll one-ribbed, dilated before and behind, behind lanceolate.

choteuthis cochlearis *Munster, Lehrb.* 1837, 252.

m. *cochlearis D'Orb. Céph. Acét.* 40. 1841, *Paléont. univ.* t. 24.

2., *Moll. Viv. et Fos.* i. 417.

Lithographic slate, Solenhoffen.

18. OMMASTREPHESES MUNSTERII.

ll dilated, short, spoonlike before, dilated, and longitudinally eyed; behind dilated, blunt.

Omm. Munsterii *D'Orb. Paléont. univ. t. 24. f. 3. 1845, J Viv. et Fos. i. 417.*

Fos. Lithographic slate, Solenhoffen.

Intermediate between *Ommastrephes* and *Geoteuthis*.

b. *Eyes covered with the Skin.*

FAM. V. LOLIGIDÆ.

Body subcylindrical, oblong, rounded behind. Fins on the side the hinder part of the back.

Head subcylindrical. Eye without eyelid, covered by the simple above. Buccal membrane distinct, often furnished with cups. Ears with a transverse ridge.

Sessile *arms* with two rows of cups. Rings not convex external and provided with a narrow prominent edge on the middle their width. Tentacular arms only partly contractile into subocular cavity.

Siphuncle attached to the head by a double superior medial band. *Shell* internal, horny, lanceolate, pennate or spatulate, without any air cells.

Loligidæ *Gray, Proc. Zool. Soc. 1847, 285.*

Loligidæ (pars) *D'Orb. Moll. Viv. et Fos. i. 318.*

Teuthidæ 11. (pars) *Owen, Trans. Zool. Soc. ii. 1836.*

A. *Head separate from the Body. Mantle free all round. Shell pennate.*

a. *Shell as long as Back. Fin posterior, dorsal, rhombic.*

1. GONATUS. Cups of sessile arms in four rows. Tentacular arms with many rows of small cups, and a single hooked at the base. Shell pennate, edges thin.
2. LOLIGO. Cups of sessile arms in two rows; lateral membrane with cups on angles. Shell pennate, edge thin.
3. TEUTHIS. Cups of sessile arms in two rows; lateral membrane without cups. Shell pennate, edges thin.

b. *Shell as long as Back. Fin occupying the Sides of the Body.*

4. SEPIOTEUTHIS. Shell pennate, broad; edge sometimes thickened.

a. *Shell elongate, broad. Animal* ——— ? *Fossil.*

TEUDOPSIS. *Shell pennate, very broad below, narrow above.*

LEPTOTEUTHIS. *Shell lanceolate, very broad above, acuminate below.*

BELOTEUTHIS. *Shell oblong, dilated and winged behind, acuminate above.*

BELEMNOSEPIA. *Shell broad, central part dilated and produced in front, winged behind.*

Shell shorter than the Back. Fin short, on the middle of the Sides of the Back.

ROSSIA.

Head attached to the Back of the Mantle by a broad cervical Band. Fin short, in the middle of the Sides of the Back. Shell narrow, with a central and two marginal Ribs.

SEPIOLA. *Cups of sessile arms nearly sessile.*

FIDENAS. *Cups of sessile arms very longly peduncled.*

Head separate from the Body. Mantle free all round. Shell pennate.

a. *Fin posterior, dorsal, rhombic. Shell as long as Back.*

1. GONATUS.

Body cylindrical, acute behind. Fins posterior, rhombic, connate behind, separate in front, elongated, linear. Ventral part of mantle with two interior marginal ridges, fitting into grooves on the base of the siphuncle, and a dorsal ridge and groove.—Head cylindrical; buccal membrane rounded, not lobed, without any cups. Eyes large, covered with the skin, with a small transparent spot; no eyelid.—Sessile arms curved, rounded externally; cups small, conical, contracted at the top, nearly uniform in size, in four series, all with small circular rings. Tentacular arms cylindrical, flattened internally and granular on the edges; club small, compressed, and finned at the tip, external; with angles of small, nearly sessile, equal-sized cups (more numerous near the base), and with a large sessile cup armed with a hook in the middle of the lower part.—Siphuncle short, conical, without superior central band, and no interior valve.—Shell horny, thin, lanceolate, pennate, narrowed and extended in front, which is lightly margined on the sides.

ycoteuthis sp. Moller, Moll. Gran, 3. 1842.

Moller describes the tentacular arms with cups to the base; is not the case, but each side of the flattened inner surface is

covered with minute scales, perhaps indicating cups, especially near the club; and the outer series of the cups on the shorter arms are like the other, with circular rings and no hooks.

1. GONATUS AMCENA.

Body cylindrical, tapering and acute behind. Fins rhombic, not one third the length of the back.

Onycoteuthis ? *amcena* Moller, *Ind. Moll. Gran.* 1.

Hab. Greenland.

a, b, c. Greenland. In spirits. From Dr. Moller's Collection.

2. LOLIGO.

Body smooth, elongate, subcylindrical, pointed behind, truncate in front. Fin on the hinder part of the sides of the back, united behind, and forming together a rhomb. Mantle with two ridges on the ventral side, fitting into two grooves on the base of the siphuncle, and with a dorsal groove fitting in a longitudinal ridge on the nape.—*Head* subcylindrical, narrowed behind the eyes; buccal membrane produced into angles; angles furnished with two series of small ringed cups. Eyes large, with a small lacrymal before the globe of the eye. Aquiferous openings, one on each side, between the third and fourth sessile arms, and six on the lips.—*Sessile arms* subulate, triangular, or compressed; third pair large, and keeled externally; cups oblique, in two alternate series, on a small foot; rings generally toothed on the widest side; the third and fourth arms shortly webbed, rest free. Tentacular arms only partly retractile, cylindrical, attached by a band to the lower arms. Club lanceolate, finned externally, with four or more rows of cups.—*Siphuncle* moderate, not sunk into a hollow, fixed by two central superior bands, and with an internal valve.—*Shell* horny, internal, occupying the whole length of the body, lanceolate, like a pen, narrow above, and with a central, longitudinal, keeled ridge, forming gutter within.—*Eggs* in subcylindrical masses crowded together on sea weeds. *Rang, Mag. Zool.* 1837, t. 47.

Τεuthος and *Τεuthις* *Aristoteles.*

Sepia sp. *Linn. Syst. Nat.*

Loligo *Plinius, Belon, Rondeletius; Lamarck, Mém. Soc. H. N.* 1799.

Syst. An. s. Vert. 60. 1801; *Leach, Jour. Phys.* 1817; *D'Orb.*

Moll. Viv. et Fos. i. 333.

Calmars plumes ou *Pteroteuthis*, sect. E. *Blainville, Malac.* 1825.
Teudopsis sp. *Munster.*

Shell very broad, pennate. Side very convex; upper Part slender.

1. LOLIGO BREVIS.

Shell cylindrical, obtuse posteriorly. Pinnae short, transversely equal. Shell dilated, oblong, pennate, central-keeled, narrow in front.

Loligo brevis Blainv. *Journ. de Phys.* 1823, *Dict. des Sc. Nat.* xvii. 145.; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céph. Géol.* t. 15—24. f. 14—19. rings; *D'Orb. Voy. Am. Mérid. Coll.* 62., *Paléont. univ.* t. 11. f. 1., *Paléont. étrang.* t. 9. f. 1., *Toll. Viv. et Fos.* i. 345. t. 19. f. 1. shell.

Loligo brevipinna LeSueur, *Journ. Acad. Nat. Hist. Philad.* iii. 82. 1824; *Féruss. D'Orb. Tab. des Céph.* 64. n. 10., *Céph. Géol.* t. 13. f. 4—6. from LeSueur, *Bullet. Univ. Sc. Nat.* iii. 2.

b. Brazil. Rio Janeiro.

2. LOLIGO HARDWICKEI.

Shell oblong, rounded behind. Fins nearly two thirds the length of the body, rounded on the sides. Second pair of sessile arms rather the largest. Tentacular arms with numerous small cups, with smaller ones in four rows at the tip. Shell lanceolate, pennate, very broad, with a narrow central ridge; the anterior extremity narrow, about one fourth the entire length.

Loligo Hardwickei Gray, *Brit. Mus.* 1836.

Tab. Indian Ocean.

a. India. In spirits. Presented by General Hardwicke.

b. Shell of a. dry.

c. India. In spirits. Small. Presented by General Hardwicke.

Like *L. brevis*, but fins longer; differs from *L. Duvaucelli*, in the being longer, and the shell broader, with a narrow stem.

Shell pennate, lanceolate. Sides convex; upper Part moderate.

3. LOLIGO MAGNA.

Shell oblong, subcylindrical, acuminate behind. Fins semirhomboidal, nearly two thirds the length of the sides. Sessile arms micro-subulate, with numerous rather large cups, and smaller ones at the end; cups oblique; rings with an eccentric opening, with eleven or thirteen elongate blunt teeth on the broad side, the rest smooth. Tentacular arms very long. Shell lanceolate, pennate, translucent; of the males elongate, acute; of the females broader and rather blunt.

- Loligo magna* *Rondeletius*, *Desc. Pisc. Marin.* lib. xvii. 506. cap. iv. 1554, *Hist. Nat. de Poiss.* 368. 1558; *Gesner, de Aquatilib.* lib. iv. 580.
- Loligo major* *Aldrovand.* *de Mollibus*, p. 67. 69, 70, 71. 1642; *Johnston*, *Hist. Nat.* lib. i. cap. iii. p. 10. t. 1. f. 4.; *Ruyssch.* *Theat. univ. omn. Anim.* lib. iv. cap. iii. p. 8. t. 1. f. 4.
- Sepia loligo* *Linn.* *Mus. Adolph. Fred.* 94. 1754, *Syst. Nat.* ed. 12. 1095. n. 4. 1767, *Gmel. Syst. Nat.* edit. 13. 3150. n. 4.; *Scopoli.* *Hist. Nat.* 127.; *Pennant*, *Brit. Zool.* iv. 53. t. 27. n. 43.; *Müller.* *Zool. Dan.* Prod. 2815.; *Gronov. Zooph.* 244. n. 1027., *Act. Helvet.* v. 379. n. 489.; *Herbst. Einleit. zur Ken.* 79. n. 2. 390.: *Bosc*, *Hist. Nat. des Vers.* 46.
- Loligo biscale* *Borlase*, *Nat. Hist. Cornwall*, 266. t. 25. f. 32. 1746.
- Calmar commun* *Montfort*, *Buff. de Sonnin. Moll.* ii. 7. 1805.
- Loligo vulgaris* *Lamck. Mém. de la Soc. d'Hist. Nat. de Paris.* 1799, p. 11., *Syst. An. s. Vert.* 60. 1801, *Hist. An. s. Vert.* vii. 667.; *Férussac*, *Dict. Class.* iii. 67.; *Blainv. Dict. des Sc. Nat.* xxvii. 143., *Journ. de Phys.*; *Carus*, *Icon. Sep. Nov. Act. Phys. Med. Acad. Cæs. Nat. Cur.* xii. 319. t. 31.; *Férussac. D'Orb. Tab. des Céph.* 63. n. 8.; *Payraud. Cat. des Moll. de Corse*, 173. n. 352.; *Risso*, *Hist. Nat. Eur. Merid.* iv. 6. n. 7.; *Blainv. Faun. Franç.* t. 3. f. . p. 15.; *Philippi*, *Enum. Moll. Sic.* 241. n. 1.; *Bouchard*, *Cat. des Moll. de Boul.* 71. n. 123.; *D'Orb. Moll. des Canaries*, 23. n. 7., *Paléont. univ.* t. 10. f. 1—12. t. 11. f. 2—4. *Paléont. étrang.* t. 8. f. 1—12. t. 9. f. 2—4., *Moll. Viv. et Foss.* 336. t. 19. f. 2—4.; *D'Orb. et Férussac. Céph. Acét. Calmars*, t. 8. long arms, not good, 9, 10. 22. f. 1. 3. t. 23. f. 1—12.; *Potiez et Mich.* *Gall. des Moll. de Douai*, i. 8. n. 1.; *Cantraine*, *Mémoires. Nouv. Mém. Acad. de Bruz.* xiii. 17. n. 3.; *Thompson's Report of the Brit. Assoc.* 1844, p. 248.
- Loligo sagittata* *Bowdich*, *Elem. of Conchol.* t. 1. f. 2. 1822.
- Loligo pulchra* *Blainv. Dict. des Sc. Nat.* xxvii. 144. 1823; *Férussac*, *D'Orb. Tab. des Céph.* 63.; *Blainv. Faun. Franç.* 17. a young female, *D'Orb.*
- Loligo Rangii* *Férussac. Céph. Acét. Calm.* t. 19. f. 4—6. 1833, on a bad drawing, *D'Orb.*
- Loligo Berthelotii* *Verany*, *Mém. Acad. Torin.* i. t. 6. (jun.) 1837.
- Hab.* Atlantic and Mediterranean.
- a. Isle of Man. In spirits. Rev. J. Henslow. Mus. Leach.
 b. —————? —————? Mus. Sloane.
 c. —————? Half-grown. In spirits.
 d. Brighton. Half-grown. In spirits. J. G. Children, Esq.
 e. —————? Eggs in spirits. Rev. G. E. Smith, Esq.
 f. Base of head and jaws in spirits. Hastings.
 g. Base of head and eyes in spirits. Torbay. Mus. Leach.

4. LOLIGO PEALII.

elongate, subconical, acuminate posteriorly. Fins rhomboidal, thick, occupying about three fifths of the length, together forming a rhomb much rounded on the sides, the front side rather shorter than the hinder. Sessile arms long; cups very oblique; legs on one side very high, with six or seven teeth, cut square at the end, other side flat, edged within. Tentacular arms long; cups unequal, very large, one rather oblique; their rings narrow, with alternate long and short very close acute teeth. Siphuncle long. Shell lanceolate, regular, narrow.

Pealii *Journ. Acad. Nat. Hist. Philad.* ii. 92. t. 8. f. 1, 2, 21; *Blainv. Journ. de Phys.* 132., *Dict. d'Hist. Nat.* xxvii. 4.; *Féruss. Dict. Class.* iii. 67. n. 13.; *D'Orb. Tab. des Céph.* 63. n. 12.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 11. t. 1. animal, f. 17—27. rings; *D'Orb. Moll. Viv. et Fos.* i. 341.

America, South Carolina and New York.

2. Boston, North America. In spirits. Presented by W. Winstone, Esq.

5. LOLIGO EMMAKINA.

oblong, rounded behind. Fins half as long as the body, subconic, slightly rounded at the sides. Lips with one or two very small cups at the tip. The second and third pairs of sessile arms larger, and with much larger cups. Tentacular arms with numerous small cups, and smaller ones at the top. Shell lanceolate, thin, with a black central ridge; the anterior part broad, the fourth the length.

Para.

2. Para. In spirits. Presented by R. Graham, Esq.

3. Shell of *a*.

6. LOLIGO AUSTRALIS.

oblong, subcylindrical. Labial membrane with small cups at the tips. Fins rhombic, half the length of the body. Tentacular arms with many moderate-sized cups disposed in four rows, and with numerous smaller cups forming four rows at the sides. Shell broad, lanceolate, blackish brown; upper end rather broad.

1. Australia, Newcastle. In spirits. Presented by Rev. C. N. Wilton.

2. Shell of *a*. broken.

7. *LOLIGO BRASILIENSIS*.

Body elongate, subcylindrical, acuminate behind. Fins short, the length of the body, together rhomboidal with rounded angles broader than long. Sessile arms triangular; ring oval, open eccentric, higher side with six or eight broad teeth, cut square. Tentacular arms very long: cup unequal: ring of larger nearly regular, with acute equal-sized equal-distanced teeth; smaller oblique, with very long distant teeth on the higher short close ones on the narrow side. Shell narrow, lanceolate depressed, broad above, with an additional groove on each side in front.

Loligo brasiliensis Blainv. *Journ. de Phys.* 1823, *Dict. des Sc.* xxvii. 144.; *Féruss. D'Orb. Tab. des Céph.* 64., *Céph.* 12.; *D'Orb. Voy. dans l'Amér. Mérid. Moll.* 63., *Moll. des Antilles*, i. 38. n. 10., *Moll. Viv. et Fos.* i. 344.

Loligo Poeyianus *Féruss. Céphal. Acét. Calmars*, t. 19. f. 1, 1833.

Hab. Brazil, Island of Cuba.

8. *LOLIGO GAHI*.

Body elongate, subcylindrical, white, spotted with red. Fins small, short, one third the length of the body, rhomboidal, angle rounded, broader than long. Sessile arms very long, ring of cups very oblique, armed on the higher side with broad blunt teeth. Tentacular arms with unequal cups: ring of larger cups oblique, armed with equal close blunt teeth; smaller ones oblique, with acute teeth, longest on the higher side. Shell elongate, dilated behind, produced, narrow in front.

Loligo Gahi *D'Orb. & Féruss. Céph. Acét. Calmars*, t. 21. f. 1. *D'Orb. Voy. Am. Mérid.* v., *Moll.* 60. t. 3. f. 1, 2. 1835. *Paléont. univ.* t. 10. f. 12, 13., *Paléont. étrang.* t. 8. f. 12, 13., *Viv. et Fos.* i. 348. t. 18. f. 13, 14. ring of cups.

Hab. South America, Chili.

9. *LOLIGO NEGLECTA*.

Body oblong, subcylindrical. Fin two thirds the length of the body, rhombic, rounded on the sides. Tentacular arms eight or nine very large cups in two rows, and small ones at the ends. Shell lanceolate.

Loligo vulgaris *D'Orb. Moll. Viv. et Fos.* i. t. 18. f. 1. 12.

Hab. Atlantic.

a. Malta. In spirits.

b. Lisbon. In spirits. Presented by G. Hough, Esq.

- c. South of Europe. In spirits, in a bad state. Presented by P. B. Webb.
 d. Dalmatia. In spirits. Mr. Heckel's Collection.

10. LOLIGO REYNAUDII.

Body elongate, larger in the middle, acuminate behind. Fins occupying more than two thirds the length of the body, elongate, rhomboidal. Sessile arms well rounded at the angles, short, unequal; second, third, and fourth pairs externally carinated; ring of cups with acute teeth on the higher side, diminishing in size to the other side. Tentacular arms large, cylindrical: cups very unequal, ten or twelve central very large; their rings smooth, of smaller lateral cups oblique, with acute teeth, longest on the higher side. Shell narrow, lanceolate; central groove rather produced above.

Loligo Reynaudii Féruſs. & D'Orb. *Céph. Acét. Calmars*, t. 24. f. 1—8. 1839, *Paléont. univ.* t. 11. f. 3., *Paléont. étrang.* t. 9. f. 3., *Moll. Viv. et Fos.* i. 346. t. 19. f. 1—5.

ab. Cape of Good Hope.

- a. Cape of Good Hope. In spirits. Presented by G. Boro-daile, Esq.
 b. The shell of *a.* in spirits.

11. LOLIGO TRICARINATA.

Animal ———. Shell lanceolate, transparent, whitish, central groove deep; the blade with a slight raised ridge from the apex to the front part of the outer edge, near the commencement of the shoulder, producing three distinct keels on the convex side of the tip; the upper part of stem one fifth of the length. Length sixteen inches.

ab. Isle of France.

- a, b. Shells. Isle of France. Presented by Lady Francis Cole.

Differs from all the other shells of the genus by its large size, and the oblique groove from the tip to the upper margin. The shell of *L. Reynaudi* is only twelve inches long.

*** *Shell lanceolate, sides straight, converging; upper part broad.*

12. LOLIGO DUVAUCELII.

Body oblong, elongate. Fins irregular, rhombic, half as long as the body. Buccal membrane seven-lobed. Sessile arms, third pair largest, compressed, finned externally; cups of the lowest or

fourth pair of arms unequal, rings with eight or nine blunt truncated teeth. Tentacular arms much enlarged at the end, with rather unequal cups; the rings of the largest very narrow, with distant acute teeth, largest on the highest side; lateral cups oblique; rings with very unequal teeth, shortest on the lowest side. Shell pennate, enlarged, provided with three grooves above, oblong, lanceolate, dilated anteriorly and posteriorly.

Loligo Duvaucelii D'Orb. & Féruss. *Céph. Acét. Calmars*, t. 14. t. 20. f. 6—16. 1826 and 1839; *D'Orb. Moll. Viv. et Fos.* i. 350.

Hab. India.

May be the young of *L. chinensis*, but the rings of the cups are very different from Férussac's figures.

13. LOLIGO CHINENSIS.

Body oblong, subcylindrical, acuminated behind. Fins rhombic. Labial membrane with a few small cups. Sessile arms, third pair largest, compressed, finned; rings of the cups of the ventral or lower pair of arms with many close acute teeth. Tentacular arms with numerous rather large cups, and some very small ones at the tip; rings of cups with distant teeth. Shell translucent, lanceolate, rather dilated behind the central part, broad, tapering; upper part (called the *stem*) short broad.

Hab. China.

a, b. Canton market. Salted, now in spirits. Presented by T. Lay, Esq.
c, d. The shell of *a, b.*

14. LOLIGO PLEI.

Body very elongate, cylindrical, acuminate posteriorly. Fins rhomboidal, about two fifths the length of the body, outer angle rounded. Sessile arms conico-subulate, very short, unequal; order of length, 3, 4, 2, 1; cups oblique; rings even, toothless. Tentacular arms, club small; cups unequal; rings of the largest smooth, toothless, of the smaller ones with acute points; of the small cups on the sides very oblique, with long teeth on the higher side. Shell elongate, very narrow, lanceolate, with three longitudinal grooves.

Loligo Plei Blainv. Journ. de Phys. 142., *Dict. Sc. Nat.* xxvii. 145. 1823; *Féruss. D'Orb. Tab. des Céph.* 64. n. 14.; *D'Orb. Moll. des Antilles*, i. 42. n. 11., *Paléont. univ.* t. 11. f. 6., *Paléont. étrang.* t. 9. f. 6., *Moll. Viv. et Fos.* i. 343. t. 19. f. 6.; *D'Orb. et Féruss. Céph. Acét. Calmars*, t. 16. t. 24. f. 9—13.

Hab. West Indies, Martinique, and Cuba.

15. LOLIGO ALESSANDRINI.

dy oblong, subcylindrical, rounded behind. Fins about two fifths the length of the body, posterior, rounded. Cups of tentacular arms, unequal, large.

ligo Alessandrini *Verany, Ceph. ex Sicilia*, t. 2. f. 2.

Hab. Sicily.

4* *Doubtful recent Species.*

16. LOLIGO MINIMA.

dy smooth, oblong, conical. Fins very small, at the end of body, semicircular, far apart. Sessile arms short, rather unequal; cups in two lines. Tentacular arms long, cylindrical, scarcely enlarged at the end, with two rows of small, alternate, peduncled cups. *Férussac.*

ligo minima *D'Orb. Moll. Viv. et Fos.* i. 351.

anchia minima *Féruss. Cranchies*, t. 1. f. 4, 5. 1830.

Hab. Coast of Africa.

17. LOLIGO CARUNCULATA.

dy oblong, roundish. Fins rhombic. Tentacular arms with cylindrical or triangular caruncles on the inner side, and a few cups.

pia carunculata *Schneider, Beobacht. und Entdeck. aus der Nat.* v. 42.; *Isert, Reise nach Guinea*, 7. 1788.

ligo carunculata *Féruss. MS.; D'Orb. Moll. Viv. et Fos.* i. 352.

Hab. Gulf of Guinea.

18. LOLIGO LANCEOLATA.

ligo lanceolata *Rafin. Précis des Découv. Somiol.* 29. 14.; *D'Orb. Moll. Viv. et Fos.* i. 352.

ib. Mediterranean. Not described.

19. LOLIGO OSOGADIUM.

ligo osogadium *Rafin. Précis des Découv. Somiol.* 29. 1814; *D'Orb. Moll. Viv. et Fos.* i. 352.

ib. Mediterranean. Not described.

5* *Fossil Species. Upper Lias.*

20. LOLIGO PYRIFORMIS.

ell oblong, smooth, attenuated in front, dilated behind.

Teudopsis pyriformis *Munster, Beitr. Petref. vi. 58. t. 6. f. 1.*
1843.

Loligo pyriformis *D'Orb. Paléont. univ. t. 12.; Moll. Viv. et Fos.*
i. 336.

Fos. Upper Lias, Ohmden, Wurtemberg.

21. LOLIGO PYRIFORMIS.

Shell ovate, oblong, smooth, dilated behind, attenuated in front.

Loligo pyriformis *D'Orb. Paléont. univ. t. 12. 1845, Paléont.*
étrang. t. 10., Moll. Viv. et Fos. i. 336.

Teudopsis pyriformis *Munster, Beitr. Petref. vi. 58. t. 6. f. 1.*
1843.

Fos. Upper Lias.

3. TEUTHIS.

Body elongate, acute behind, becoming produced and elongated in adult age, especially in the males. Fin rather behind the middle of the sides of the back, forming a heart-shaped expansion together. — *Head* subcylindrical. Labial membrane simple, not produced into angular lobes, and destitute of any cups. Shell lanceolate, narrow; rest like *Loligo*.

Teuthis Aristoteles, de Anim. iv. 1.; Schneider, Samml. Verm. 112.
1784.

Loligo sp. *Belon, de Aquat. 339.; Férussac, Lamck., Leach, &c.*
Sepia sp. *Linn.*

Loligo β. *D'Orb. Moll. Viv. et Fos. i. 337.*

1. TEUTHIS PARVA.

Body subcylindrical, elongate, attenuated behind, and in the adult males produced beyond the fins. Fins separate, far apart in front, rhomboidal, subcordiform. Sessile arms with the oblique rings armed with blunt close teeth on the higher side. Tentacular arms long, clubbed; rings with very close blunt teeth. Shell lanceolate, broad, narrow in front.

Loligo parva *Rondelet. de Piscib. lib. xvii. cap. v. 508. 1554;*
Gesner, de Aquat. lib. iv. 581.; Bossuet de Nat. Aquat. 200;
Leach, Nat. Miscell. iii. 138.; D'Orb. Moll. Viv. et Fos. i. 339.

Loligo minor, Rondeletii Aldrovand. de Moll. 72. 67. 1642; Johnston, Hist. Nat. Exang. lib. i. de Moll. cap. iii. p. 8. t. 1. f. 5;
Ruysch, Theatr. Exang. 8. t. 1. f. 5.

Sepia media *Linn. Syst. Nat. ed. 12. 1095. n. 3. 1767; Scopoli, Hist. Nat. 27.; Pennant, Brit. Zool. iv. 54. t. 29. f. 45.; Gray,*

yst. Nat. edit. 13. 3150. n. 3.; *Turton, Brit. Zool.* 119.; *Brug. Encyc. Méth.* t. 76. f. 9.

mar dard *Montfort, Buff. de Sonnin, Moll.* ii. 74. t. 16, 17. 805.

mar contourné *Montfort, Buff. de Sonnin, Moll.* 82. t. 18. 1805.

igo subulata *Lamarck, Mém. Soc. Hist. Nat. Par.* i. 15. n. 3.

799, *Hist. An. s. Vert.* vii. 664. n. 3.; *Bosc, Buff. de Deterv.*

Vers. i. 46.; *Blainv. Journ. de Phys.* 131., *Dict. des Sc. Nat.*

xvii. 143.; *Férussac, Dict. Class.* iii. 67. n. 5.; *D'Orb. Tab. des*

Céph. 63. n. 9.; *Payraudeau, Cat. Moll. de Corse,* 172. n. 350.;

Blainv. Faunc. Franç. 16.; *Potiez & Mich. Gall. Moll. de*

Jouai, i. 8. n. 2.; *Cantraine, Malac. Nouv. Mém. Acad. de Brux.*

iii. 17. n. 2.; *D'Orb. Céph. Acét. Calmars,* t. 17. t. 23. f. 19.

3—21.; *Thompson's Report of the Brit. Assoc.* 248.

igo spiralis *Féruss. Dict. Class.* n. 6. 1823; *D'Orb. Tab. des*

Céph. 63. n. 10.

igo marmoræ *Verany, Mem. Acad. Sc. Torin.* i. t. 5. 1837, fe-

male.

igo *Lamarmoræ Verany, Cat. Invert. Genova,* 17.

Tab. Atlantic and Mediterranean, Coasts of France and Eng-

l.

a. Brighton. Male; tail very long. In spirits. Presented by J. Rucker, Esq. Mus. Leach.

b. Shell of a. dry. _____.

c. Hastings. Male, larger; tail longer. In spirits. Presented by J. G. Children, Esq.

d. Devon. Female, smaller; tail shorter. In spirits. Presented by W. E. Leach, M.D.

e. Coast of Holland. Female; tail shorter. In spirits. Presented by E. Engle, Esq.

f. Shell of e. dry.

g. Shell of d.

h. Shell. Coast of France. Presented by W. E. Leach, M.D. Young, the end of tail not produced. Fins about two fifths the length of the body.

Loligo vulgaris jun. *Féruss. Céph. Acet.* t. 22. f. 23. ?

i. Weymouth. Young. In spirits. Presented by Rev. Dr. J. Goodall.

j. Plymouth. Young. In spirits. Presented by W. E. Leach, M.D.

2. TEUTHIS SUMATRENSIS.

ly short, cylindrical, attenuated behind. Fins regularly rhomboidal, truncated in front, rounded on the sides, nearly half the length of the body. Sessile arms moderate; rings with six or

eight very blunt teeth on the higher side; lower side and third pair largest. Tentacular arms long, slender; club late; cups unequal; ring of the lateral cups armed with teeth on the higher side. Shell oblong, spoon-shaped; part rather narrow and produced.

Loligo sumatrensis D'Orb. & Féru. *Céph. Acét. Calmars*, f. 1—3. 1839; *D'Orb. Moll. Viv. et Fos.* i. 349.

Hab. Sumatra.

b. *Shell as long as Back. Fin occupying the Sides of the Box*

4. SEPIOTEUTHIS.

Body oblong, rather depressed, subcylindrical. Fins narrow tending the whole length of the sides of the back. Suspensory buttons on the ventral surface, marginal, cartilaginous, 1 enlarged below; cervical ridge linear.—*Head* large, buccal membrane seven-lobed; buccal aquiferous openings six; external ear with a transverse crest, enlarged and curved up in front.—*Sessile arms* conical, subulate, unequal, finned externally, cups in two rows. Tentacular arms long, cylindrical; enlarged and finned; cups in four alternated rows, with a membrane.—*Siphuncle* with two central superior bands.—*Internal* siphon, horny, the length of the back, pennate, lanceolate, narrow in front, and with a central keel.

Sepia sp. Lamck. 1812.

Calmars Seiches (*Loligo Sepioidea*) Blainv. *Jour. Phys. Malac.* 1825.

Chondrosepia Leuckart, 1828.

Sepioteuthis Féru. *Tab. Céph.* 1825; *D'Orbigny, Moll. Viv. et Fos.* i. 319. t. 17.; *Desh.* in *Lamck. Hist.* xi. 242.

Les Sepioteuthes Blainv. *Malac.*

Synopsis of Sections.

* Buccal membrane provided with cups.

** Buccal membrane without any cups.

* *Buccal Membrane provided with Cups.*

† *Shell lanceolate, thickened on the Sides, obliquely up to the Shoulder.*

1. SEPIOTEUTHIS LUNULATA.

Body oval, oblong. Fins very broad, fleshy, most dilated to the middle of the body. Sessile arms elongate, slender, unequal in order of length, 3, 2, 4. 1; cups depressed, oblique; rim

strong, curved, distant teeth, longest on the highest side. Tentacular arms much clubbed, blunt; cups rather oblique, in four lines; rings of the larger central ones narrow, with very distant teeth. Shell lanceolate, thickened edge extending up to the shoulder, upper part short.

epioteuthis lunulata Quoy & Gaim. *Voy. Astrol. Zool. Moll.* ii. p. 74. t. 3. f. 8—13. ♀? 1832; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 3. f. 1. t. 6. f. 1—8.; *D'Orb. Moll. Viv. et Fos.* i. 323. t. 17. f. 5—8.

epioteuthis guinensis (Sepioteuthe de Dorei) Quoy & Gaim. *Voy. Astrol. Zool. Moll.* ii. 72. t. 3. f. 1—7. 1833.

epioteuthis dorensis *D'Orb. et Féruss. Céph. Acét. Sepioteuthis*, t. 3. f. 3. ♂? 1833.

Tab. New Guinea, Vanikoro.

2. SEPIOTEUTHIS AUSTRALIS.

Body oblong-elongate, cylindrical, truncated in front, acuminate and blunt behind. Fins very broad, very fleshy, subrhomboidal, broadest in the middle of the body. Sessile arms elongate, unequal; order of length, 3, 4, 2, 1. Tentacular arms very strong, compressed; club large; cups very large; rings of larger cups with very blunt distant teeth. Shell thin, flexible, lanceolate, widest at one third its length; central rib prominent, expansion commencing near its upper end.

epioteuthis australis Quoy & Gaim. *Voy. Astrol. Zool.* ii. 77. t. 4. f. 1. 1833, *Règne Animal du Cuv.* t. 3.; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 5. f. 5. t. 6. f. 15—21.; *D'Orb. Moll. Viv. et Fos.* i. 324. t. 17. f. 15.

Tab. New Holland.

Var. 1. Cups on labial membrane, three in one line.

a. Port-Jackson, Australia. Half-grown. In spirits. Presented by J. B. Jukes, Esq. n. 81.

b. The shell of a.

Var. 2. Cups on labial membrane, five in two lines.

c. Darnley Island, Australasia. Adult. In spirits. Presented by J. B. Jukes, Esq. n. 241.

3. SEPIOTEUTHIS MAURITIANA.

Body spotted with violet, cylindrical, acuminate behind. Fins narrow, widest at two thirds the length of the body. Sessile arms unequal; order of length 3, 4, 2, 1; cups oblique; rings with a number of acute, hooked, curved teeth. Tentacular arms slender; cups rather oblique; rings of the middle cups with acute, distant, hooked teeth, largest on the highest side.

Labial membrane with four or five cups at the angle (*Férussac*, l. c. t. 5. f. 4. t. 7. f. 8.). Shell lanceolate, widest at one third the length, central ridge very strongly thickened, and diverging to the upper extremity of expansion.

Sepioteuthis mauritiana *Quoy & Gaim. Voy. Ast. Moll.* ii. f. 2—6. 1833; *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis* f. 1—4. t. 7. f. 1—5.; *D'Orb. Moll. Viv. et Fos.* i. 328.

Hab. Mauritius.

4. SEPIOTEUTHIS MADAGASCARIENSIS.

Body oblong, rounded behind. Fins broad, rounded. Tentacular arms unequal, four-rowed. Labial membrane single cup at the tip of each angle. Shell lanceolate, broad, thickened on the side, upper part rather broad, bluntly pointed.

Sepioteuthis madagascariensis *Gray MS. B. M.* 1836.

Hab. Madagascar.

- a.* Madagascar. In spirits. Presented by J. E. Gray
b. Shell of *a.* In spirits.

†† *Shell lanceolate, not thickened on the Sides.*

5. SEPIOTEUTHIS LESSONIANA.

Body elongate, spotted with violet. Fins dilated posteriorly. Head broad; ear crests thick, broad. Sessile arms unequal; order of length, 3, 4, 2, 1; cups oblique; rings distant acute teeth. Tentacular arms bluntly clubbed, large, very oblique; rings armed with acute, distant, teeth. Shell lanceolate, broadest in the middle; outer edge thickened; central rib broad, extended in front, one third the length.

Sepioteuthis Lessoniana *Féruss. D'Orb. Tab. des Céph.* 6. *Lesson, Voy. de Coquille, Moll.* 241. t. 11.; *D'Orb. et Céphal. Acét. Sepioteuthis*, t. 1. t. 6. f. 2—14.; *D'Orb. Viv. et Fos.* i. 326.

Hab. New Guinea.

- a.* Bay of Islands, New Zealand. Adult. (Rings of black, nearly edentulous.) Antarctic Expedition.
b. Shell of *a.* broken. In spirits.
c, d. Bay of Islands, New Zealand. Young. (Ring cups brown, with numerous acute teeth.) Antarctic Expedition.

Shell of c. In spirits.

? Shell dry. (Probably of this species.)

Orbigny, in his description, says the shell is without any ridges or thickening, but his specific character is (*lateribus satis*). Both our specimens have three or four small cups, and a single line on the angles of the buccal membrane; and show that the rings, on which M. D'Orbigny appears to place reliance, change their character with the age of the species.

** *Buccal Membrane without any Cups.*

† *Shell very thin, not thickened on the Edges.*

SEPIOTEUTHIS SEPIOÏDEA.

Ovate, oblong, spotted with violet, acuminate behind. Fins commencing some distance behind, outline subrhomboidal. Siphon arms subulate, slender, unequal; order of length 3, 1, 4, dorsal pair compressed, other depressed; rings broad, with acute teeth, smaller on their lower side. Tentacular arms distally clubbed; cups in four lines, of the two central lines best. Shell, very thin, transparent, very broad, lanceolate, edge not thickened; central ridge broad above, very narrow below.

officialis var. b. Lamck, *Mém. de la Soc. d'Hist. Nat.* 1799, *Hist. An. s. Vert.* xii. 668.

tritèe Montfort, *Buff. de Sonnin. Moll.* i. 265. t. 6. 1805.

sepioïdea Blainv. *Journ. de Phys.* 1823, p. 133., *Dict. Sc.* xlvii. 146.

affinis Féruss. *D'Orb. Tab. Méth. des Céphal.* 66. n. 3. 1825.

biserialis Blainv. *Dict. Sc. Nat.* xlviii. 284. 1827.

seuthis biangulata Rang, *Mag. de Zool.* 73. t. 98. 1837.

seuthis sepioïdea D'Orb. *Moll. des Antilles*, i. 34. n. 9. 1838,

U. Viv. et Fos. i. 320.; *D'Orb. et Féruss. Céphal. Acét. sepioïdeuthis*, t. 7. f. 6—11. rings.

West Indies.

Honduras. In spirits.

Jamaica?. In spirits. Mus. Sloane.

The shell of b., dry. Slightly thickened on the edge.

†† *Shell with the Margin thickened.*

SEPIOTEUTHIS SLOANII.

Arms with only two rows of rings at the base. Fins widest in the middle of the body. Shell broad, lanceolate, with a very

broad thickened side; margin thicker on the inner side; central keel very broad, rounded above, thicker in the centre, without any grooves on the sides; gradually narrower in front.

Loligo Sloanii Leach, *MS. Brit. Mus.* 1817.

Hab. West Indies.

a. Honduras. In spirits.

b. The shell of *a.*

c. —————? In spirits. Mus. Sloane.

d. Shell of *c.*, dry. Taken out by Dr. Leach.

8. SEPIOTEUTHIS BLAINVILLIANA.

Body cylindrical, rather attenuated, but rounded behind. Fins fleshy, outline broader in the middle of the body. Sessile arms slender, long; rings oblique, thick, with long, close, acute teeth. Tentacular arms, cup moderately large; rings like those of the sessile arms. Under side of the buccal membrane tuberculately thickened. Shell lanceolate, very broad, thin, lateral expansion broadest in the middle of the length, strongly thickened on the sides of the extremity.

Sepioteuthis Blainvilliana Féruss. & D'Orb. *Sepioteuthis*, t. 2. 1839; *D'Orb. Moll. Viv. et Fos.* i. 327. t. 17. f. 1—4.

Hab. Java.

*** *Buccal Membrane unknown or undescribed.*

† *Fins most dilated on the Middle of the Body.*

9. SEPIOTEUTHIS HEMPRICHII.

Body compressed, attenuated posteriorly, rounded. Fins subequal, elliptical, enveloping the whole sides. Shell very soft.

Sepioteuthis Hemprichii Ehrenberg, *Symbolæ Physicæ, Céph.* n. 1. 1831; *D'Orb. Moll. Viv. et Fos.* i. 322.

Hab. Red Sea.

10. SEPIOTEUTHIS BILINEATA.

Body elongate, rhomboidal, surrounded with a blue mark. Fins dilated in the middle.

Sepia bilineata Quoy & Gaim. *Voy. Astrol. Zool.* ii. 66. t. 2. f. 1. 1833.

Sepioteuthis bilineata D'Orb. & Féruss. *Céphal. Acét. Sepioteuthis*, t. 4. f. 2. 1839; *D'Orb. Moll. Viv. et Fos.* i. 325.

Hab. New Holland.

11. SEPIOTEUTHIS MAJOR.

Body subcylindrical, attenuated posteriorly; lateral pinnae produced to the whole length of the body, extended in the middle.

Sepioteuthis major Gray, *Spic. Zool.* 3. t. 4. f. 1. (Mus. Col. Surg.); *D'Orb. et Féruss. Céphal. Acét. Sepioteuthis*, t. 7. f. 12. 1828; *D'Orb. Moll. Viv. et Fos.* i. 330.

Hab. Cape of Good Hope. Mus. Col. Surgeons. The giant of the genus.

†† *Fins most dilated behind the Middle of the Body.*—*Chondrosepia*.

12. SEPIOTEUTHIS LOLIGINIFORMIS.

Shining fuscous colour above, flesh-coloured beneath, with small reddish points scattered all over; aliform membrane broader towards the posterior part, of a violet colour underneath.

Sepioteuthis loliginiformis *D'Orb. & Féruss. Céph. Acét. Sepioteuthis*, t. 4. f. 1. 1839; *D'Orb. Moll. Viv. et Fos.* i. 322.

Chondrosepia loliginiformis *Leuckart; Rüppell, Atlas zu der Reise*, t. 21. t. 6. f. 1. 1828.

Hab. Red Sea.

13. SEPIOTEUTHIS ————?

Sepioteuthis sinensis *D'Orb. Moll. Viv. et Fos.* i. 329. 1845, from *Encyclop. Japonaise*, art. *Jeou-iu* (Poisson mou).

c. *Shell elongate, pennate, broad. Animal unknown. Fossil.*

5. TEUDOPSIS.

Animal unknown.—*Shell* internal, horny, spathula-formed, very narrow, much prolonged in front and dilated behind, with a narrow medial rib; the lateral expansion broad, convex above, concave below, representing a kind of spoon at the hinder extremity.—*Fossil.* Upper Lias.

Teudopsis (les *Teudopsides*) *Deslongchamps, Mém. Soc. Linn. Norm.* 1835, v. 74. t. 3. f. 1, 2, 3.; *D'Orb. Moll. Viv. et Fos.* i. 359., *Paléont. Franç.*; *Desh. in Lamck. Hist.* xi. 241.

Beloteuthis sp. *Munster, Petref.* vi. t. 6. f. 1.; *Bronn, Gesch. der Naturg.* iii. 541.

Teuthopsis *Bronn, Gesch. der Nat.* iii. 541. misprint?

1. TEUDOPSIS BUNELLII.

Shell elliptical, smooth, attenuated in front, rather blunt but convex above, and concave below.

Teudopsis Bunellii *Deslongch. Mém. Soc. Linn. Norm.* v. 7. f. 123. 1835; *D'Orb. Paléont. Franç. Ter. Jur.* i. 38. t. 1. *léont. univ.* t. 13., *Moll. Viv. et Fos.* i. 361. t. 20.

Teuthopsis Bunellii *Bronn*, l. c. 541.

T. Caumontii *Deslongch.* l. c. v. 76. t. 3. f. 45.

Fos. Upper Lias, Calvados. *Deslongch.*

2. TEUDOPSIS AMPULLARIS.

Shell elongate, lanceolate, smooth; sides sinuated; before etc slender, produced; behind, dilated, blunt.

Teudopsis ampullaris *D'Orb. Pal. univ.* t. 14. f. 1, 2. 1844 *étrang.* t. 11. f. 1, 2., *Moll. Viv. et Fos.* i. 260.

Beloteuthis ampullaris *Munster, Beitr. Petr.* vi. t. 6. f. 1. ? *Bronn, Gesch.* 541.

Sepioteuthis gracilis *Munster, Beitr. Petr.* vi. t. 14. f. 5. ?

Fos. Upper Lias.

3. TEUDOPSIS BOLLENSIS.

Shell lanceolate, elongate, oblique, and broad on the side; narrow and prolonged in front, enlarged behind; sides sinuated; central rib very distinct.

Teudopsis Bollensis *Voltz, Taschenb.* 629. 1836; *D'Orb. F. univ.* t. 14. f. 3., *Paléont. étrang.* t. 11., *Moll. Viv. et Fos.* i. 361. t.

Loligo Bollensis *Schubler, Zeiten. Wurt.* 49. t. 37. f. 1. 1838 t. 25. f. 6, 7.

L. Schubleri *Queenstedt, Wurt.* 254. 1843.

Beloteuthis Bollensis *Bronn*, l. c. 541.

Fos. Upper Lias, Wurtemberg.

6. LEPTOTEUTHIS.

Animal unknown.—*Shell* horny, internal, lanceolate, very and rounded in front; the central rib is only slightly curved and very broad.—*Fossil.* Oxford Clay.

Leptoteuthis *Meyer, Mus. Senskenb.* i. 202. 1824; *Bronn Taschenb.* 1836, 56.; *D'Orb. Paléont. univ.* t. 15., *Paléont. étrang.* t. 12. *Moll. Viv. et Fos.* i. 363. t. 21.

1. LEPTOTEUTHIS GIGAS.

Shell lanceolate, smooth, blunt in front, pointed behind.

Leptoteuthis gigas Meyer, *Mus. Lensenb.* i. 202.; *Bronn, Taschenb.* 1836, 56.; *D'Orb. Moll. Viv. et Fos.* i. 363. t. 21.

Fos. Oxford clay, Solenhoffen.

7. BELOTEUTHIS.

Form unknown.—*Shell* internal, horny, lanceolate, flat, acuminate in front, enlarged and winged behind, with a central convex, and two diverging lateral concave ridges in the concave beneath.—*Fossil.* Upper Lias.

Leptoteuthis (pars) *Munster, Beitr. Petref.* vi. t. 5. f. 1. 1843; *D'Orb. Moll. Viv. et Fos.* i. 364. 1845, *Paléont. univ.* t. 16. 1845. *Pyroliolites* sp. *Munster*, 1843.

Leptoteuthis sp. ? *Bronn, Ges. der Nat.* iii. 541.

1. BELOTEUTHIS SUBCOSTATA.

Shell compressed, lanceolate, attenuated in front, substriated above, and rather costated beneath.

Leptoteuthis subcostata *Munster, Beitr. Petref.* 61. t. 5. f. 2. t. 6. f. 2.; *D'Orb. Moll. Viv. et Fos.* i. 363., *Paléont. univ.* t. 16., *Paléont. étrang.* t. 13.

substriata *Munster*, l. c. 62. t. 5. f. 3. t. 6. f. 5.

acuta *Munster*, l. c. 63. t. 6. f. 4.

venusta *Munster*, l. c. 64. t. 14. f. 2.

ampullaris (pars) *Munster*, l. c. t. 5. f. 1. not t. 6. f. 1.

Pyroliolites substriatus *Munster*, l. c. 76. t. 6. f. 6. ?

Fos. Upper Lias, Wurtemberg.

8. BELEMNOSEPIA.

Form unknown.—*Shell* internal, horny, thin, broad; central part gradually increasing in breadth to the more or less produced broad front part, and with a rounded expansion on each side behind; the lines of growth of the central part transverse, and of the lateral wing arched and concentric; the hinder part convex above and concave beneath.—*Fossil.* Upper Lias and Oxford Clay.

Belemnosepia *Agassiz, Lehrb.* 1835, 627. 1836, 36. in *Buckland, Geol.* i. 374. note, 1836, ed. 2. 414. 1839; *Desh.* in *Lamck. Hist.*

xi. 245.; *D'Orb. Paléont. Franç. Ter. Jur.* 1842, *Mé. Fos.* i. 433.; *Mantell, Medals of Creation*, ii. 468. fig. *Belopeltis Voltz, Bull. Soc. Géol.* ii. 40. 1840, *Mém. Soc.* 1843.

Loligosepia Queenstedt, Flolzeberg Wurtemb. 252. : Blainv.

Geoteuthis Munster, Beitr. vi. 68. 1843; *D'Orb. Moll. V* i. 161.

Paleosepia Théod. 1844.

Onychoteuthis sp. *Munster, Lehrb.* 1830.

Sea Pens, or *Loligo* sp. *Buchland, Geol.* i. 374.

Celseno? sp. *Owen, Trans. Phil. Soc.* 1844.

1. BELEMNOSEPIA LATA.

Shell dilated, compressed, broad, and truncated in front, broad entire wings behind.

Geoteuthis lata Munster, Beitr. vi. t. 7. f. 1. 1843.

Belemnopeltes emarginata Voltz, MS.

Belemnosepia lata D'Orb. Paléont. univ. t. 25. f. 1. t. 26. f. 1. *Viv. et Fos.* i. 436. t. 31. f. 1.

Fos. Upper Lias, Wurtemberg.

2. BELEMNOSEPIA FLEXUOSA.

Shell oblong, lanceolate, produced, truncated, and narrow behind; sides with elongate narrow wings.

Geoteuthis flexuosa Munster, Beitr. zur Petref. vi. t. 9. f. 1.

Belemnosepia flexuosa D'Orb. Paléont. univ. t. 25. f. 2. 1846, *Moll. Viv. et Fos.* i. 437. t. 31. f. 2.

Fos. Upper Lias, Wurtemberg.

3. BELEMNOSEPIA AGASSIZII.

Shell elongate, conical, dilated before, attenuated behind on sides elongate, broad.

Teudopsis Agassizii Deslongch. Mém. Soc. Lin. Norm. f. 15. 1835.

Belemnosepia Agassizii D'Orb. Paléont. univ. t. 25. f. 3. *Moll. Viv. et Fos.* i. 437. t. 31. f. 3.

Fos. Lias, Calvados.

4. BELEMNOSEPIA ORBIGNYANA.

Shell dilated, compressed, broad in front. Wing of broad, sinuous.

oteuthis Orbignyana *Munster, Beitr. Petref.* vi. t. 7. f. 2. 1843.
 emnosepia Orbignyana *Orb. Paléont. univ.* t. 26. f. 3. 1846,
Moll. Viv. et Fos. i. 438.

5. Upper Lias, Wurtemberg.

5. BELEMNOSEPIA SAGITTATA.

ell elongate, dilated in front, lanceolate, with short lateral wing behind.

oteuthis sagittata *Munster, Beitr. Petref.* vi. t. 7. f. 3. t. 8. f. 4. i. 14. f. 4. 1843.

lemnosepia sagittata *D'Orb. Paléont. univ.* t. 27. 1846, *Moll. Viv. et Fos.* i. 439.

angusta *Munster, MS.*

5. Upper Lias, Wurtemberg.

6. BELEMNOSEPIA HASTATA.

ell narrow, elongate, narrow in front, lanceolate, blunt, with narrow wing behind.

oteuthis hastata *Munster, Beitr. Petref.* v. t. 8. f. 3. 1843.

lemnosepia hastata *D'Orb. Paléont. univ.* t. 28. f. 1. 1846, *Moll. Viv. et Fos.* i. 439.

5. Upper Lias, Wurtemberg.

7. BELEMNOSEPIA SPECIOSA.

ell like *B. Bollensis*, but narrower and more conic.

oteuthis speciosa *Munster, Beitr. Petref.* vi. t. 8. f. 2. 1843.

lemnosepia speciosa *D'Orb. Paléont. univ.* t. 28. f. 2., *Moll. Viv. et Fos.* i. 440.

5. Upper Lias, Wurtemberg.

8. BELEMNOSEPIA BOLLENSIS.

ell dilated, oblong, dilated in front, truncated; side wing rather narrow, sinuous.

ligo Aalensis *Schubler, Zeiten. Wurtemb.* 34. t. 25. f. 4. 1830.

ligo Bollensis *Schubler, Zeiten. Wurtemb.* 34. t. 25. f. 5. 7. 1830.

sil Sea Pens *Buckland, Min.* t. 28. f. 6, 7. t. 29. f. 1, 2. t. 30. 836.

opeltis sinuatus *Voltz, Bull. Soc. Géol.* ii. 40. 1840, *Mém. Soc. Strasb.* iii. 1843. from *Zeiten*.

oteuthis Bollensis *Munster, Beitr. Petref.* vi. t. 14. f. 3. t. 8. f. 1.

emnosepia Bollensis *D'Orb. Paléont. univ.* t. 29. f. 1. 3. 1846,
Moll. Viv. et Fos. i. 440.

Embalmed Calamary (Celæno, *Munster*) *Owen, Phil. Tra.*
84. t. 4. f. 2. ??

Fos. Upper Lias, Wurtemberg and Lyme Regis.

9. BELEMNOSEPIA OBCONICA.

Shell conical, oblong, dilated in front, truncated; side wing
Geoteuthis obconica *Munster, Beitr. Petref.* v. t. 9. f. 1. 11
Belemnosepia obconica *D'Orb. Paléont. univ.* t. 29. f. 4
Moll. Viv. et Fos. i. 441.

Fos. Upper Lias, Franconia.

d. *Shell horny, shorter than the Back. Fin short, on the 1*
the Sides of the Back.

9. ROSSIA.

Body separate at the neck, purse-shaped, rounded behind
cated before. Cervical band none. Mantle supported
or below by a small tubercle, fitting into an elongate
ous groove at the base of the siphuncle, above at the
central ridge received into a groove. Fins oval, oblon
on the middle of the sides of the back.—*Head* large, de
narrowed behind the eyes. Eyes large, lateral, superi
an inferior eyelid. Buccal membrane short, six-lobed
behind, a little below the eyes.—*Sessile arms* strong
conical, subulate, unequal; cups fleshy, globular, se
two or four series; rings horny, convex, toothless; th
fourth pair distinctly webbed. Tentacular arms retrac
a large subocular cavity, long, cylindrical, with club
finned ends; without any protective membrane for th
with pediceled spherical cups on two alternating
their rings swollen externally and toothed on the upp
—*Siphuncle* without any superior band at its junction
head.—*Shell* horny, lanceolate, only occupying the
half of the body.

Rossia *Owen, "J. Ross, Voy. Append. 1835, Trans. Zool.*
1828; *Weigm. Arch.* i. 298. 1836; *D'Orb. Céphal. Ac.*
Moll. Viv. et Fos. i. 235. 1845; *Gray, Syn. B. M.* 9
Proc. Zool. Soc. 1847. 205; *Møller, Ind. Moll. Gr.*
Loven, Ind. Moll. Scand. 3.

Sepiola sp. *Gervais & Van Beneden, Bull. Acad. Bru.*
Delle Chiaje, MS.; *Desh. in Lamck. Hist. ed. 2. xi. 228*

* *Cups of sessile Arms similar, equal.*—Rossia.

Cups of sessile Arms in two alternating Rows beneath, and four or more at the Tip. Fins contracted at their Junction with the Body.

1. ROSSIA PALPEBROSA.

Body oblong. Head nearly as large as the body, swollen at the base. Fins placed anteriorly. Sessile arms short, very unequal; order of length, 3, 4, 2, 1; cups in two rows at the base, and many rows at the end of the arms, with the rings on the inner side of the sphere. Tentacular arms elongate, with very many cups, which are smaller near the tip.

Rossia palpebrosa Owen, *Ross's Voyage, Nat. Hist.* 93. t. B. f. 1. d. t. c. 1834; *D'Orb. Céphal. Acét.* 247. n. 2.; *Rossie*, t. 1. f. 10., *Moll. Viv. et Fos.* i. 256.

Rossia palpebrosa Gervais & Van Beneden, *Bull. de l'Acad. Roy. Bruxelles*, v. n. 7. 1838.

Atlantic Ocean, Prince Regent's Inlet, North Sea.

2. ROSSIA MACROSOMA.

Body smooth, short, rounded, broader than long. Fins thin, short, subcircular, larger in front. Head short. Sessile arms subequal, rather compressed, elongated, unequal; order of length, 4, 1, 2; cups spherical, in two distinct rows at the base, and three at the tip; rings large, smooth, and entire. Tentacular arms slender; cup at the base of the club large, gradually diminishing in size, and augmenting in number, towards the end. Shell lanceolate, two thirds the length of the body.

Rossia macrosoma Delle Chiaje, *MS.*; Gervais et Van Beneden, *Bull. de l'Acad. de Brux.* vi. n. 1. 1838.

Rossia macrosoma D'Orb. & Féruce, *Céphal. Acét.* 245. *Sepiola*, f. 13—24. 1839, *Moll. Viv. et Fos.* i. 257. t. 11.

The Mediterranean, near Naples.

Cups of sessile Arms in two Rows. Fins wide at the Junction with the Body.

3. ROSSIA SUBULATA.

Body rather elongate, blunt behind. Fins rounded, largest at their junction with the body. Sessile arms unequal; relative length, 4, 3, 2, 1; cups alternate in two rows, shortly pedicelled.

Tentacular arms long, slender.—Body, head, and arms rose-coloured, red-dotted.

Sepiola subulata *Eyd. MS.*; *Gervais et Van Beneden, B. Acad. Roy. de Bruxelles*, v. n. 7. 1838 (Note sur *Sepiola*.)

Rossia subulata *D'Orb. & Fér. Céphal. Acét.* 249. n. 3. 18: *Viv. et Fos.* i. 259.

Hab. Indian Ocean, Manilla.

** *Cups of lateral three Pairs of Arms very large, p distant; Cups of other arms small, crowded, equal. cular arms tapering.*—Heterotenthis.

4. ROSSIA DISPAR.

Body ovate, rounded, and rather tapering behind. Fins rather behind the middle of the back. Sessile arms externally; four upper pairs slightly webbed together, the fourth slightly webbed on the side, ventral pair separate cups small, globular; third pair finned, with a very few globular cups. Tentacular arms slender; club scarcely compressed externally, with very minute cups placed in series.

Rossia dispar *Rüppell, MS. Brit. Mus.*

Sepiola dispar *Rüppell*, in *Giorn. del Gabin. di Messin* 1845.

Hab. Sicily.

a, b. Sicily. In spirits. From Edward Rüppell, M.

*** *Cups peduncled.*

5. ROSSIA ? OWENII.

Cups large, distinct, on long peduncles, arranged in three rows; those of the centre row not half the size of the side ones; first pair of arms more numerous, more equal in size; smaller, than on the other arms.

Rossia Owenii *Ball, Trans. Roy. Irish Acad.* 1843; *The Report of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv.* i. 259. n. 4.

Hab. Ireland, Dublin Bay. Ball, 1839.

6. ROSSIA ? JACOBI.

Larger than *R. Owenii*; arms shorter; cup smaller.

a hexagonal membrane, with a ridge running to the second, third, and fourth pairs of arms; on the first pair it passes upon the web between the first pair of arms, where it bifurcates and on each side.

Jacobi Bull, *Trans. Roy. Irish Acad.* 1843; *Thompson's Art of Brit. Assoc.* 1843, p. 248.; *D'Orb. Moll. Viv. et Fos.* 9. n. 5.

Ireland, Dublin Bay. Dr. A. Jacob, 1840.

Head attached to the Back of the Mantle by a broad cervical band. Fin short, in the Middle of the Sides of the Back.

10. SEPIOLA.

Head short, purse-like, rounded behind, truncated before. Cervical band broad. Mantle with an oblong ridge near the edge fitting into a groove on the sides of the base of the siphuncle. Fins in the middle of the sides of the back far apart, contracted to the base.—*Head* short. Eyes large, prominent; inferior and distinct. Buccal membrane short, six- or seven-lobed. Ear large, beneath and behind the eye. Aquiferous apertures two; dorsal, brachial, between the third and fourth pairs of arms; the ventral and lacrymal, very small, above and behind the eye. Buccal apertures none.—*Sessile arms* conical, subulate, unequal; cups small, longly pediceled; rings horny oblique, convex externally; third and fourth pairs slightly webbed at the base. Branchial arms retracted into a suborbital cavity, elongate, finned, with very many very small longly pediceled cups in a tight series.—*Siphuncle* with an internal valve, and no central upper band at its junction with the head.—*Shell* horny, linear, narrow at the top, wider in front, and rather dilated behind, not more than half the length of the back, with a medial valve and thickened edges.

Leach, *Rondelet. Piscis et Aquat.* i. 510. 1554; *Aldrovand. de Pisc.* l. cap. 5. 1606.

Leach, *Zool. Misc.* iii. 137. 1817, *Journ. Phys.* lxxxvi. 674. 1817; *Féruss. et D'Orb. Céphal. Acét.* 1839; *D'Orb. Moll. Viv. et Fos.* i. 215. 1845; *Risso, Eur. Merid.* 1826; *Blainv. Malac.* i. 1833; *Grant, Trans. Zool. Soc.* i. 1838; *Owen, Trans. Zool. Soc.* i. 338; *Gervais et Van Beneden, Bull. Acad. Brux.* v. 1838, vi. 1839.

See sect. A. on Sepioles *Blainville*.

p. Linn. Gmelin, Goldfuss.

Loligo sp. *Lamarck*, 1799; *Férussac*, *Tabl. Syst.* 24.
 Sepiolæ (les Sepioles) *Risso*, *Eur. Merid.* iv. 7. 1826, not
 Sepiolidæ (pars) *Leach*, *Zool. Misc.* iii. 137. 1817.
 Octopodia sp. *Schneid. Samml. Verm. Abh.* 116. 1784.
 Sepiolidea *D'Orb. Moll. Viv. et Fos.* i. 249.

* *Body and Head smooth internally. Cartilage of Mantle linear, oblong.*

† *All the sessile Arms with two alternating Rows of Cusps at Tip.*

1. SEPIOLA RONDELETI.

Body oblong, smooth, rounded behind. Fins oval. Siphon short, rather unequal; proportion of length, 2, 3, 4 globular, in two close, regular, alternating, series; ring Tentacular arms short; club small, compressed, striated externally; cup spherical, very small, with eight ones irregularly disposed, and with entire rings; the first of arms the least rounded externally; ventral pair concealed. Shell with a medial groove and thickened margin.

Sepiola Rondeletius, de *Piscibus*, lib. xvii. cap. x. p. 5.
Bossuet, de Aquatil. 204.; *Johnston, Hist. Nat. de Pis.*

cap. iii. t. 1. f. 8. p. 8.; *Ruysch, Theatr. Evang.* t. 1. f. *Sepiola Rondeleti* *Gesner, de Aquatil.* lib. iv. 855. 1558
vand. de Moll. lib. v. 63. 1642; *Leach, Nat. Miscell.* (1817); *Rang, Mag. de Zool.* 70. t. 95.; *Gervais et Valenciennes, Bull. Acad. Roy. Bruxelles*, v. n. 7. p. 8.; *D'Orbigny, russ. Céph. Acét.* 330. n. 2., *Sepioles*, t. 1. f. 1—6. t. 3. f. 6—9.; *Potiez et Michaud, Gal. des Moll.* i. *D'Orb. Moll. Viv. et Fos.* i. 249. n. 2. t. 10. f. 13.; *Proc. Rep. Brit. Ass.* 245. 1843.

Sepia Sepiola *Linn. Syst. Nat.* edit. 12. 1096. n. 5. 1767
Aserv. Zool. p. 128.; *Herbst, Eniseit. zur Kennt. der Natur.* n. 4.; *Gmel. Syst. Natur.* edit. 13. 3151.; *Wulfen, Phys. Med. Acad. Nat. Cur.* viii. 235.; *Martens, I. Venedig*, ii. 436.

Loligo Sepiola *Lamarck. Mém. de la Soc. d'Hist. Nat. de* 1799, *Anim. s. Vertéb.* vii. 664. n. 4.; *Penn. Brit. Zool.* 29. f. 46. 1777; *Barbut, Worms*, 76. t. 8. f. 5.; *Brugger* 77. f. 3.; *Blainv. Dict. Sc. Nat.* xxvii. 184.; *Carus, Icon. Nov. Act. Acad. Nat. Curios.* xii. 318. t. 29. f. 2, 3.; *Polidori, Cat. des Moll. de Corse*, 173. n. 353.; *Philippi, En Sic.* 241. n. 3.

la vulgaris Grant, *Trans. Zool. Soc. Lond.* i. 77. 1833.

la Grantiana Féruss. *Sepioles*, t. 2. f. 3, 4., *Magas. de Zool.* *ll.* p. 66. 1835.

la Devigniana Gervais & Van Beneden, *Bull. Acad. Brux.* p. 1838.

British Channel and the Mediterranean.

a, b, c. Medway, near Nore. In spirits. Presented by Rev. J. Henslow. Mus. Leach.

d. Berwick-upon-Tweed. In spirits. Presented by G. Johnston, M. D.

e, f. Mediterranean. In spirits. Presented by R. B. Webb, Esq.

g. Sandgate. Not good state. In spirits. Presented by Rev. G. E. Smith.

h. Hastings. In spirits. Presented by W. E. Leach, M. D.

i, j. —————? In spirits. —————? Some of the cups of the sessile arms larger than the rest.

2. SEPIOLA OWENIANA.

Very elongate, ovate, smooth, rather pointed behind. Fins very small, far apart, nearly circular. Sessile arms elongate, slender, bilobate, unequal; order of their length, 2, 3, 4, 1; cups oblique, rather compressed, rounded, with a large opening, in two distinct alternating lines; rings entire. Tentacular arms very long, very slender; club small; cups very crowded, and exceedingly minute; aquiferous pores two. Shell ———?

Sepiola Oweniana D'Orb. & Féruss. *Céph. Acét.* 229. n. 1., *Sepioles*, 3. f. 1—5. 1839; *D'Orb. Moll. Viv. et Fos.* i. 252. n. 5.

—————?

3. SEPIOLA ? JAPONICA.

Very oblong. Fin widened. Sessile arms unequal, dorsal short, dorsal ones longest; cups in two separate alternating lines, with clavate muscular tube up between the cups. Tentacular arms long, cylindrical, scarcely enlarged at the end; cups very minute, only one fourth of the size of those of the sessile arms. Shell ———?

Mus. Krusenstern, Voy. t. 88. f. .

Sepiola Japonica D'Orb. & Féruss. *Céph. Acét.* 234. n. 3. 1839; *Orb. Moll. Viv. et Fos.* i. 251. n. 3.

Japan.

†† *The sessile Arms with two Rows of Cups; the lower eight Rows of smaller Cups at the Tip.*

4. SEPIOLA ATLANTICA.

Body oblong, purse-shaped, rounded behind. Fins oval. Sessile arms short, unequal; proportionate length, cups small, oblique, in two series; lateral arms large or the ventral pair with two rows at the base, several crowded rows of smaller cups at the tip. Tentacles rather long. Shell linear, narrow, gradually enlarge and spatulate behind the tip, sides thickened.

Loligo Sepiola Bouchard, Cat. des Moll. Mar. du Bouk 1835.

Sepiola vulgaris Gervais & Van Beneden, Bull. de Bruxelles, iv. n. 7. 1838, not Grant.

Sepiola atlantica D'Orb. & Féruss. Céphal. Acét. 235 Sepioles, t. 4. f. 1—12. 1839; D'Orbigny, Moll. Viv. et t. 10. f. 1—12. 1845.

Sepiola oceanica D'Orb. Moll. Viv. et Fos. t. 10. f. 13.

Hab. Atlantic Ocean.

M. D'Orbigny, at page 247., describes the dorsal arms as having four rows of cups, but he does not mention longer description. The British specimens in the British Museum do not belong to this species.

††† *The sessile Arms with eight Rows of Cups.*

5. SEPIOLA STENODACTYLA.

Body short, rounded behind. Fins subcircular. Sessile arms thick and short, rather unequal; cups spherical, in seven or eight rows, rather irregularly. Tentacular arms long, slender; club indistinct; minute.—Purple, arms cross banded.

Sepiola stenodactyla Grant, Trans. Zool. Soc. Lond. 1831. f. 1, 2. and f. 6. apex of sessile arms; Gervais & Van Beneden, Bull. de l'Acad. de Bruxelles, v. n. 7. f. 1. D'Orb. et Féruss. Céph. Acét. 238. n. 5., Sepioles, t. 4. f. 6.; D'Orb. Moll. Viv. et Fos. i. 252. n. 4.

Hab. Mauritius. Mus. Zool. Soc.

The name *stenodactyla* must have originated in a name given by Dr. Grant expressly says the arms are proportionally more slender and shorter than in *S. vulgaris*, l. c. p. 85.

Body and Head tubercular beneath; internal Cartilage of Mantle broad, contracted in the Middle.—*Sepiolidea* D'Orb.

6. SEPIOLA LINEATA.

Head and body smooth above, strongly tubercular on the sides beneath, tubercle with a horny centre, dorsal edge of mantle bearded. Body short, rounded. Sessile arms short, quadrangular, rather unequal; two upper pairs slenderer and shorter, and webbed at the base; cups hemispherical, in two alternate regular series on the base, and then small and in four series; their rings very high, and with an external border. Tentacular arms slender, lanceolate at the end, and with twenty series of very numerous, exceedingly small, crowded cups.—Whitish, with longitudinal blue or opake white lines.

Sepiola lineolata Quoy & Gaim. *Zool. Voy. Ast.* ii. 82., *Moll.* t. 5. p. 8—13. 1832; *Gervais et Van Beneden, Bull. de l'Acad. de Bruxelles*, v. 7.

Sepiolidea lineata D'Orb. & Féruss. *Céphal. Acét.* 240. t. 3. f. 10—18. 1834, *Ann. Sci. Nat.* xvi.; *D'Orb, Moll. Viv. et Fos.* 1. 242. t. 9.

hab. *Jervis Bay, New Holland.*

11. FIDENAS.

Body oblong, rounded behind, united to the head by a broad cervical band; a linear cartilage on each side, in the base of the siphuncle. Fins oblong, on the sides of the back.—*Head* moderate. *Eyes* large, lateral.—*Sessile arms* subulate, roundish, elongated, tapering, free, except the third and fourth pairs, which are united together by a short web. *Cups* very small, globular, two-rowed, longly pedunculated; peduncles suddenly contracted, very thin near the cup. *Tentacular arms* destroyed?—*Siphuncle* very large, long, free from the head.—*Shell* ———? or none.

Is this the same as, or allied to, *Rossia subulata*? but the cups are said to be supported on a short pedicel; has that species a cervical band? for the bone is described as like *Sepiola*.

1. FIDENAS PENARES.

hab. *Indian Ocean.*

a. *Singapore.* In spirits. Not good state, lost the pedunculated arms.

Suborder II. *SEPIAPHORA*.

Shell cellular, calcareous; back hard; cavity filled with separated by numerous cells.—*Head* united to the mantle by a broad cervical band. Mantle attached behind, free and with two internal cartilaginous longitudinal ridges into cartilaginous grooves in the base of the sides of the siphuncle. Fin as long as the sides of the back.

Teuthomorpha (Sepiæ) (pars) *Bronn, Gesch. der Nat.* iii.

FAM. VI. SEPIADÆ.

Body short, oval or rounded, depressed. Fins lateral, from one another behind by a neck or free space.

Head broad. Eyes lateral. Lower eyelid distinct. Ridges none. Buccal membrane without cups.

Sessile *arms* with four rows of cups; horny ring of the mantle firmly convex, and narrowed above and below, with external ridges. Tentacular arms entirely retractile, with a cell at their base.

Siphuncle without any superior band at its junction with the mantle with an internal valve.

Shell internal, as long as the back, calcareous, filled with cells, without any siphon.

Sepidæ (pars) *D'Orb. Moll. Canar.* 20. 1837, *Moll. Viv.* 237. 1845.

Sepiana *Gray, Proc. Zool. Soc.* 1847, 205.

Sepiadæ *Owen, Trans. Zool. Soc.* ii. 2. 1838; *Gray, Zool.* 1842. 92.

Sepioidæ *Agassiz, Nomencl.*

Sepiacea (pars) *Desh. Ency. Méth.* ii. 1830.

Sepiæ (les Seiches) *Risso, Eur. Merid.* iv. 7. 1826.

1. SEPIA.

Body large, ovate or oblong, fleshy, depressed, rounded behind with a rounded projection on the front of the dorsal edge. Fins narrow, lateral, bordering the whole side of the body, with a rate behind. The ventral part of the mantle furnished with an oblique oblong tubercle fitting to a concavity in the siphon.

er part of the siphuncle; the cervical part under the front of shell, with longitudinal central ridge fitting into a groove on back.—*Head* very large, wider than long, without any crest cervical plaits. Eyes large, with an inferior eyelid, and a ymal opening in the front of the folds of the eyelid. Ear at lower part of the globe of the eye. Buccal aquiferous wings six, between the base of the arms and the lips; buccal abrane seven-lobed, the two lower lobes least marked.—*File arms* short, strong; dorsal pair compressed, lateral pair ressed, third pair with a membranous crest; protecting abrane of the cups very short; cups spherical, fleshy, oblique uncled, in four rows; fourth pair free, rest united by a ht web at the base. Tentacular arms entirely retractile, g, slender; terminal club large, with an external fin; horny g convex externally, contracted above and below.—*Siphuncle* re, short, without any band at the junction to the head, and h a large internal valve.—*Shell* (Sepiotaire *Blainv.*) emded in the back of the animal, as long as the body, calcareous, pressed, ovate or oblong, externally convex, rugose, hard, h a horny edge and acute tip. The cavity is filled with very ique layers of a cellular spongy substance, sometimes leaving mall, simple, conical cavity under the apex.

Plinius.

sp. *Linn. Cuvier, Anat. Comp.* 1800, *Règ. Anim.* ii. 365. 1817.

Lamck, Syst. 59. 1801; *Blainv. Malac.* 1825; *Gray, R. l. Soc.* 1847, 205.; *D'Orb. Moll. Viv. et Fos.* i. 261. 1845.

modia sp. *Schneider.*

Dumeril, Zool. Anat.

Beloptera A. *Blainv. Malac.* 621. 1825, *Belemn.* 110. 1837.

Sepiostera *Desh. Lyell, Princ. Append.* 40. 1833.

Sepiostaria *Blainv. Belemn.; Voltz, Mém. Soc. Strasb.* 1830.

Belosepia *Voltz, Belemn.* 23. 1830.

shells of the species may be arranged as follows:—

Shell oblong.

† *Apex very blunt.* *S. officinalis*, n. 1. *Férussac, Céph. Crypt. t.*
2. *S. latimanus*, n. 5. t. 12. f. 1, 2.

†† *Apex produced.* *S. vermiculata*, n. 7. t. 13.*

S. Rouxii, n. 2. t. 19.

S. Rappiana, n. 6. t. 10. *S. Bertheloti*, n. 12. t. 11. t. 23.

S. Hierreda, n. 4. t. 13. t. 18.

S. aculeata, n. 15. t. 5. and t. 25. *S. Blainvillii*, t. 21.

S. rostrata, n. 22. t. 8. t. 26.

††† *Apex very blunt, and produced.* *S. tuberculata*,
(*S. papillata*, t. 3. *S. mammillata*, t. 4.)*
S. Lefebrei, n. 8. t. 24. f. 1. 6.

** *Shell oblong, produced behind.*

S. inermis, n. 20. t. 6.* (*S. sinensis*, n. 20.) §
n. 19. t. 22. *Microcheirus*, n. 21. (*inermis*,

*** *Shell very narrow behind, and arched.*

† *Apex simple.*

S. australis, n. 18. t. 12. f. 7—11. *S. Rupellari*
t. 13. f. 10. 13. *S. capensis*, n. 28. t. 7. f. 1.
S. Orbigniana, n. 27. f. 5. *S. australis*, n. 23.

†† *Apex dilated.*

S. elegans, n. 26. t. 8. f. 1—5. *S. elongata*, n.
f. 7—10.

The shell of *S. officinalis* and *S. apama* have the inside of the front part, which is next to the back of the animal, covered with a hoodlike horny plate, apparently formed of the continuation of the cartilaginous margin which has not been observed in the other species.

See Longchamps (*Mém. Soc. Lin. Norm.* v. 1835, p. 107) and Buckland (*Bridgewater Treat.* ii. t.) on the structure of the shell.

Synopsis of the Sections of the Genus.

§ Sessile Arms with small equal Cups, all in four regular rows.

* Tentacular Arms with five or six series of small sized Cups.

** Tentacular Arms with five or six series of moderate-sized Cups.

3 * Tentacular Arms with twenty series of unequal sized Cups.

4 * Tentacular Arms with eight or ten series of small sized Cups.

§§ Sessile Arms with small equal Cups; the two dorsal Arms with only two rows, rest with two and four.

§§§ Sessile Arms with unequal-sized large and small Cups.

N.B.—When the animal is unknown, the species is arranged to that whose shell it most resembles.

sile Arms with small equal Cups placed in four regular alternating Lines.

ntacular Arms with unequal-sized Cups placed in five or six Lines.

1. SEPIA OFFICINALIS.

ovate, depressed, smooth. Head with two elongated, and some taller beards above. Sessile arms short, strong, unequal; order length, 4, 3, 2, 1; ring of cups smooth, entire. Tentacular arms much enlarged, with six alternating lines of cups, the five central cups much larger; rings of the larger cups smooth, of the smaller ones toothed. Shell ovate, compressed, wrinkled above, semi-cartilaginous on the edge and behind, rounded posteriorly; when young the apical beak is conical, prominent, and the upper part of the last internal plate occupied; half the beak becomes immersed in the cartilages, and the plate is diminished to one third the length of the cavity in the adult.—Back purple, with darker cross bands, forked, and with small white spots on the side.

Sepia officinalis Linn. *Fauna Suecica*, n. 2106., *Syst. Nat.* edit. 12. 1765, n. 2.; *Gmel. Syst. Nat.* edit. 13. 3149. n. 2.; *Scopoli, Hist. Nat. Obs. Zool.* 127.; *Pennant, Brit. Zool.* iv. 55.; *Gronovius, Zoophyl.* 244. n. 1021.; *Brug. Encyc. Méth.* t. 76. f. 56.; *Müller, Nov. Act. Phys. Med. Berlin*, viii. 379.; *Lamarck, Mem. Soc. Hist. Nat. Paris*, 4., *Syst. des Anim. s. Vert.* 59., *Hist. An. s. Vert.* vii. 668.; *Bosc, Hist. Nat. des Vers*, i. 45. n. 2.; *Leach, Nat. Miscell.* iii. 138.; *Carus, Icon. Sep. Nov. Act. Nat. Cur.* xii. 317. t. 28.; *Martens, Reise nach Venedig*, ii. 436.; *Syrrad. Cat. Moll. de Corse*, 173. n. 54.; *Risso, Hist. Nat. Eur. Merid.* iv. 3. n. 10.; *Blainv. Dict. Sc. Nat.* xlviii. 284., *Faune Franç.* 18.; *Deshayes, Enc. Méth. Vers*, iii. 944. n. 1.; *Bouchard, Cat. Moll. Mar.* 72. n. 125.; *Potiez et Mich. Gal. Moll. de Bouai*, i. 8. n. 1.; *Philippi, Enum. Moll. Sic.* 241. n. 1.; *D'Orb. Coll. des Canar.* 20. n. 4., *Céphal. Acét.* 260. n. 1., *Seiches*, t. 2, 3. f. 1—3. t. 17. f. 12., *Paléont. univ.* t. 3. f. 1—5. t. 4. f. 1—16., *Paléont. étrang.* t. 3. f. 1—5. t. 4. f. 13—16.; *Cantraine, Catal. Nouv. Mém. de Brux.* xiii. 14. n. 1.; *D'Orbigny, Moll. Vie. et Fos.* i. 272. t. 12. f. 1—5. t. 13. f. 13—16.

Se common Montfort, Buff. de Sonnin. *Moll.* i. 171.

Se rugosa Bowdich's *Elements of Conchology*, t. 1. f. 1.

Se Schneider, *Sammlung Verm.* 108.

Se ab. Atlantic Ocean, Coasts of Europe and Africa, Mediterranean.

Se a. Torbay, Devonshire, England. In spirits. Presented by J. R. Griffith, Esq.

- c. —————? In spirits. Not good state.
 d. Torbay. Egg. In spirits. Presented by J. R. C. Esq.
 e. Torbay. Young, one day old In spirits. Presented by J. R. Griffith, Esq.
 f. —————? In spirits. Not good state.
 g, h. Shell. Adult. Dry. Coast of England.
 i. Shell. Adult. Dry. Malta. Presented by Miss E. A.

2. SEPIA ROUXII.

Body ovate, smooth, acuminate in front, rounded posteriorly. Fins broad. Head smooth. The buccal membrane present with five prominent lobes; lower part thicker, fleshy, with any lobes; the lower bands not marked externally. Arms elongate, unequal; order of length, 4, 3, 2, 1; with rows of cups furnished with rings armed with long acute teeth on their border side. Tentacular arms with six rows of the two middle rows composed of seven very large cups, with rings, with short teeth all round. Shell ovate, wrinkled and tuberculated, thickened underneath posteriorly with a short blunt beak, and a very thick convex diaphragm occupies all the extremity of the cavity.

Sepia Rouxii D'Orb. in *Féruss. Céph. Acét.* 271. n. 3., *Sép.* 19.; *D'Orb. Moll. Viv. et Fos.* i. 290.

Hab. Red Sea, Indian Ocean, Bombay.

- a. Tunis, Africa. Adult. In spirits. Presented by Louis Frazer.
 b. The bone of a.
 c, d. Tripoli, Africa. Young. In spirits. Presented by Ritchie, Esq.
 e, f. The bones of c, d.
 g, h, i. The bones dry. Young.
 j. Dalmatia. Young. In spirits. From Mr. Heckel's collection.
 k. The shell of j.

3. SEPIA VICELLIUS.

Blackish, smooth. Sessile arms thick; lower rather larger; rather large, in four regular series; rings entire. Tentacular arms moderate; clubs moderate, slightly finned behind; smaller than those of the sessile arms, in five rows, the first six of those in the central line about treble the size, with rings, very minutely and regularly bluntly toothed on the edge. Shell oblong, rather attenuated above, dilated behind;

ant, not produced beyond the horny part at its base; back
gose, subconcentric.

————— ?

2. In spirits.

3. Its bone dry.

4. SEPIA HIERREDDA.

ovate, depressed, rather tuberculate. Fins broad. Head
with a beard on each eye. Ear with a longitudinal and a trans-
verse ridge. Sessile arms thick, unequal; order of their length,
3, 1, 2; rings of cups with small teeth. Tentacular arms
with very unequal cups in six lines, the middle ones being very
large; the rings entire. Animal brown and yellow marbled,
white-spotted, and with a series of six white lines on the
sides. Shell ovate, compressed, wrinkled above, acuminated
anteriorly, rounded posteriorly, with a long curved beak; the
ventral plate in all ages occupied half the cavity.

Sepia hierredda Rang, *D'Orb. et Féruss. Seiches*, t. 13., *Magaz.*
Zool. 75. t. 100.; *D'Orb. Moll. des Canar.* 21. n. 5., *Moll.*
Viv. et Fos. i. 278.; *D'Orb. et Féruss. Céph. Acét.* 268. n. 2.,
Seiches, t. 13. t. 18.

hab. Atlantic Ocean, Coast of Africa, Cape of Good Hope,
and of Teneriffe.

5. SEPIA LATIMANUS.

ovate, smooth, truncated in front, pointed behind. Fins
narrow, blue-edged. Sessile arms slender, quadrangular, elon-
gate, unequal; order of length, 4, 3, 2, 1; with four rows of cups;
horny rings with very fine, close teeth. Tentacular arms dilated,
strongly palmated, with five lines of cups, with six or eight very
large ones, having their horny rings plaited on the edge. Shell
long, rounded anteriorly, obtuse posteriorly, longly and
narrowly beaked.

Sepia latimanus Quoy & Gaim. *Zool. Voy. Astrol.* ii. 68., *Atl. Moll.*
2. f. 2. 11. 1832; *D'Orb. et Féruss. Seiches*, t. 12. f. 1—6. t.
f. 16, 17. (1839); *D'Orb. Moll. Viv. et Fos.* i. 291.

hab. Rappiana *Féruss. Pl. des Seiches*, n. 10. (1834).

hab. Indian Ocean, New Guinea, and the Celebes.

6. SEPIA TUBERULATA.

ovate, tuberculated; tubercles very unequal, divided into
lobes. Fins narrow. Head tuberculated on the back, sides,
and round the eyes, smooth below. Sessile arms short, thick.

unequal; length, 4, 3, 2, 1; with four rows of cups, 1 by rings. Tentacular arms thickly clubbed, with five cups; four of them much larger, with oblique, entire. Shell very depressed, ovate, nearly equally round at above smooth, and cartilaginous on the sides and ends very concave.

Sepia tuberculata Lamck. *Mém. Soc. Hist. Nat. Paris*, i. 1—6., *Hist. An. s. Vert.* 2d edit. vii. 668. n. 2.; *Bosc, Determ. Vers.*, i. 45.; *Montfort, Buff. de Sonnin. Moll.* 7.; *Blainv. Dict. Sc. Nat. Crypt.* f. 2—6., *Malacolog.* 1. f. 2—6.; *Deshayes, Enc. Méth.* iii. 945. n. 2.; *Féruss. Céphal. Acét. Seiches*, t. 3 ter, t. 4 bis, t. 6. t. —15.; *D'Orb. Paléont. univ.* t. 3. f. 11., *Moll. Viv.* 281. t. 12. f. 11.

Sepia papillata Quoy & Gaim. *Voy. Ast. Zool.* ii. 61. t. 1. *Féruss. et D'Orb. Céph. Acét. Sepia*, t. 3.

Sepia mamillata Leach, *MS.*; *Féruss. et D'Orb. Céph. A.* t. 4*.

Hab. Cape of Good Hope.

a. Shell of adult. Dry. Imperfect. Cape of Good

7. *SEPIA VERMICULATA.*

Body ovate, smooth, acute anteriorly. Fins broad, lateroventrally, rounded behind, dotted with red. Head large. Setae short, thick at their base, unequal; length, 4, 3, 2, 1; with four rows of cups, with entire rings. Tentacular arms very long; club flattened, with very numerous cups, the largest ten larger than the rest, with entire rings. Shell obliquely beaked posteriorly.

Sepia vermiculata Quoy & Gaim. *Voy. Ast. Moll.* ii. (1—5. (1832); *D'Orb. et Féruss. Céph. Acét. Seiches* *D'Orb. Moll. Viv. et Fos.* i. 284.

S. Hierreda var.? *D'Orb.* l. c. 285.

Hab. Cape of Good Hope.

8. *SEPIA LEFEBREI.*

Animal ———? Shell ovate, oblong, rounded at above, concentrically wrinkled above, nearly flat above, gibbous and elevated in the middle beneath, with a round.

Sepia Lefebrei *D'Orb. Céphal. Acét.* t. 24. f. 1—6. (shell) *univ.* t. 4. f. 5—6., *Moll. Viv. et Fos.* i. 288. t. 13. f.

Red Sea.

efly differs from *L. gibbosa* in the shell appearing to be er.

9. SEPIA GIBBOSA.

al ————? Shell elongate, boat-shaped, rounded at each l, gibbous beneath, obtuse.

gibbosa Ehrenberg, *Symbolæ Phys. Sepia*, n. 2.; *D'Orb. Ill. Viv. et Fos.* i. 287.

gibba *D'Orb.* l. c. 288, 289.

b. Red Sea.

10. SEPIA APAMA.

ial ————? Shell oblong, elongate; the posterior part rich produced, subacute, with a strong callosity at the posterior edge of the cavity. Apex blunt, rugose; anterior extremity rounded, covered with strong cartilaginous side; ntral portion rather convex.

Australia.

a. Port Adelaide. Shell. Dry.

ost like *S. Lefebrei*, but the posterior extremity is much more nced and subacute, and the inner side of the central part is onvex.

Cups of tentacular Arms in five or six Series, subequal, moderate-sized.

† *Shell oblong.*

11. SEPIA LYCIDAS.

nal ————? Sessile arms with four series of rather large ual cups. Tentacular arms elongate: club distinct, slightly med behind, with five series of cups; those of the middle the arms equal-sized, nearly the size of those on the sessile ms; of the lower and upper end smaller. Shell oblong, ther elongate; slightly produced above; narrowed, produced, d rounded behind. Apex blunt; cavity with a strong, ised, rounded ridge on each side behind; disk convex, ith a broad central concavity extending nearly the whole ngth.

a. Animal salted, from Canton market. Presented by T. Lay, *Esq.*

b. *The shell (dry, rather broken) from a.*

†† *Shell elongate, narrow.*

12. *SEPIA BERTHELOTI.*

Body oblong, elongated, subcylindrical, smooth, blunt behind, pointed in front. Fins narrow, broader behind. Eyes sessile. Sessile arms long, slender, unequal; order of length, 4, 2 cups in four rows, equal-sized. Tentacular arms long, bifurcated, finned; cups in five rows, the central one largest, with outer rings, toothed all round. Shell elongate, very narrow, wrinkled above, acuminate in front, and with a long beak, and wings on the side behind. — Purplish, with a pale spot on the side.

Sepia Bertheloti D'Orb. & Féru. *Monog. des Céph. Acct.* t. 23. 1835; D'Orb. *Moll. des Canar.* 21. n. 6. t. 11., *Moll. Fos.* i. 277.

Hab. Atlantic Ocean, Teneriffe.

13. *SEPIA PLANGON.*

Body oblong. Fins narrow, pale. Back of mantle much protruded in front. Sessile arms rather thick; cups small, distant, in rows. Tentacular arms slightly clavate, with a few very subequal cups. Shell elongate, narrow, dilated behind, elongated, acute, recurved; cavity concave behind, strong, shelly, diverging ridge on each side, with a wide groove.

a. Port Jackson. In spirits. Dr. J. Robertson, Australian Expedition.

b. The shell of a. dry.

c. Australia. Shell. Dry. Presented by A. Sinclair, R. N.

Shell most like *S. Orbignyana*, but the inner part has 10 ridges.

3* *Tentacular Arms with unequal-sized Cups placed in ten 5*

14. *SEPIA SAVIGNII.*

Body ovate, oblong; back with triangular beards, forming a ridge on the sides; smooth below. Fins broad, as long as the body. Sessile arms thick, very unequal; order of length, 2, 1; rings of cups toothed. Tentacular arms clubbed, with 5 lines of cups, those of the two middle lines larger, with 5 rings. Shell — — — — ?

a officinalis *Andouin, Expl. Somm. des Pl. d'Egypt*, t. 5. t. 1. 3. 1827.

a Savignyi *Blainv. Dict. des Sc. Nat.* xlviii. 285. 1827; *D'Orb. et Féruss. Céphal. Acét. Seiches*, t. 4.; *D'Orb. Moll. Viv. et Fos.* i. 287.

a Savigniana *Féruss. Seiches*, t. 4. 1828.

a Pharaonis *Ehrenberg, Symb. Phys. An. Mollusc. Céphal. Sepiacea*, n. 1. 1831.

. Red Sea.

Tentacular Arms finned, with numerous, small, equal-sized Cups, placed in eight or ten Lines.

† Shell very narrow behind.

15. SEPIA ACULEATA.

Body ovate, rounded, smooth, rather pointed behind. Fins broad, thick, commencing rather behind the front edge. Sessile arms longate, unequal; order of length, 4, 3, 2, 1; cups globular, in four series, with rings minutely toothed all round. Tentacular arms with very small cups in ten or twelve lines, with distant minute teeth on the ring. Shell ovate, oblong, tubercularly wrinkled, depressed, rounded at the ends, and with a long, straight, acute beak, convex beneath in front, and concave behind.

a aculeata *Van Hasselt, MS.*; *D'Orb. et Féruss. Céph. Acét. Seiches*, t. 5. bis, t. 25.; *D'Orb. Moll. Viv. et Fos.* i. 296.

. Indian Ocean, Java.

16. SEPIA RUPELLARIA.

Shell ————? Shell elongated, very narrow, depressed, much arched behind, prolonged and acuminate in front; sulcated above; one-ribbed longitudinally, posteriorly; concave underneath.

a *Rupellaria D'Orb. & Féruss. Céphal. Acét. Seiches*, t. 3. f. 13. 1839, shell; *D'Orb. Moll. Viv. et Fos.* i. 276.

. Neighbourhood of Rochelle, &c. Ireland? *Ball*, 1839.

17. SEPIA ELONGATA.

Shell ————? Shell very elongated, narrow, pointed in front, enlarged behind, and provided with a wing-like expansion and a long acute beak, rugose above, with a medial longitudinal groove; swollen beneath, gibbous in the centre.

Sepia elongata D'Orb. & Féruss. *Céphal. Acét. Seiches*, t. 2. p. 7—10. 1339, shell; D'Orb. *Paléont. univ.* t. 4. f. 7—10. *Paléont. étrang.* t. 4. f. 7—10. shell, *Moll. Viv. et Fos.* i. 280. t. 13. f. 7—10. shell.

Hab. Red Sea.

18. *SEPIA SINOPE.*

Animal ———? Bone elongate, sublanceolate; back smooth, slightly concentrically wrinkled, with two deep grooves in the side of the centre of the back; rather tapering at the upper part; apex imperfect.

Sepia australis Quoy & Gaim. ? Féruss. *Céphal. Acét. Sepia*, t. 2. f. 9. shell (not D'Orb.).

a. China. Bone. Dry. Imperfect.

†† *Shell oblong, posterior end expanded, produced, cartilaginous, beaked, convex beneath.*—*Sepiella*.

19. *SEPIA ORNATA.*

Body ovate, elongated, very smooth, brown, spotted with white. Fins very broad, broader behind. Ears with broad thick edges. Sessile arms thick, short, unequal; length, 4, 3, 1, 2; cups in four rows; rings oblique, smooth on the narrow, and with small unequal teeth on the broad edge. Tentacular arms lanceolate with very small close cups of equal size in eight or ten lines with toothed rings. Shell oblong, elongate, straight, compressed, wrinkled above, obtuse anteriorly, winged posteriorly.

Sepia ornata Rang, *Magas. de Zool.* 1837, 76. t. 101.; D'Orb. & Féruss. *Céphal. Acét.* t. 22.; D'Orb. *Paléont. univ.* t. 3. f. 12. 4. f. 1, 2., *Paléont. étrang.* t. 3. f. 12. t. 4. f. 1, 2., *Moll. Viv. et Fos.* i. 280. t. 12. f. 12. club of tentacle, t. 13. f. 1, 2. shell.

Hab. Coasts of Africa, at Goree, Senegal, &c.

20. *SEPIA SINENSIS.*

Body oblong, elongate, smooth, narrow, blunt behind. Fins in a row, rather wider behind, beginning behind the front edge. Sessile arms with four series of small cups. Tentacular arms rather short, slender, without any distinct club; slightly indented at the top externally; cups very minute or entirely wanting. Shell oblong, elongate, straight, rounded in front, *hinder ends* not beaked above, expanded and produced into cartilage behind; convex beneath.

inermis Hassell, *MS.*; *Férussac, Céph. Acét.* t. 6*. not t. 20.
t; *D'Orb. Moll. Viv. et Fos.* i. 295.

sinensis *D'Orb. Céph. Acét. Seiches*, t. 9. f. 1, 2. 1839, from
inese drawing, *Moll. Viv. et Fos.* i. 299.

tse-in, *Encyclopédie Japonaise.*

t. China. In spirits. Presented by R. Card, Esq.

t. The shell of *a*.

t, *d.* Animals. Salted specimens, as sold in Canton market.

Presented by Tradescant Lay, Esq.

t, *f.* The shell of *c.* and *d.*

21. SEPIA MICROCHEIRUS.

ovate, oblong, smooth, rounded behind, spotted with violet.
is broad, thickened, wider behind. Ears with a raised edge
und. Sessile arms short, triangular, unequal; order of length,
3, 1, 2; cups in four rows; rings entire on the narrow, and
row teeth on the broad edge. Tentacular arms lanceolate;
is exceedingly small, equal-sized, in ten or twelve series.
ell ovate, oblong, wrinkled, acuminate in front, narrow and
nded behind; convex above, cartilaginous underneath, and
anded into two wings behind; beneath with a strong central
ove in front.

microcheirus Gray, *Brit. Mus.* 1830.

inermis Hassell, *MS.* fide *D'Orb. et Féruss. Céph. Acét.*
ches, t. 20. f. 1—9. 1839, not t. 6.; *D'Orb. Paléont. univ.* t. 3.
t, 10., *Paléont. étrang.* t. 3. f. 9, 10., *Moll. Viv. et Fos.* i. 295.
2. f. 9, 10. ring of cup.

India.

t. India. Young. In spirits. Presented by General Hard-
wicke.

t. The shell of *a.* dry.

t. India. Young. In spirits.

t. The shell of *c.* dry.

t. India. Young.

t. The shell of *e.* dry.

t. India. ? In spirits. Presented by Mr. John Leadbeater,
senior.

t. The shell of *g.* in a bad condition. In spirits.

t. India. Very young. In spirits. Presented by General
Hardwicke.

††† Shell oblong, rounded behind, beaked

22. SEPIA ROSTRATA.

thick, rounded, narrow before, obtuse behind. Fins thick,
row in front, dilated behind. Sessile arms elongate, slender,

unequal; order of length, 4, 3, 2, 1; cups spherical, with small smooth-edged rings. Tentacular arms lanceolate with very small numerous equal-sized cups in many lines, and toothless rings. Shell ovate, oblong, tubercularly wrinkled, depressed, broader in the middle, narrow behind, and furnished with an elongated compressed beak beneath; convex above, concave and with a diaphragm behind.

Sepia rostrata D'Orbigny, *Céphal. Acét. Seiches*, t. 8. f. 6. 29. 1839, *Paléont. univ. & Paléont. étrang.* t. 4. f. 11, 12. *Viv. et Fos.* i. 293. t. 13. f. 11, 12. shell.

Hab. Indian Ocean, Bombay, Ceylon, and New Holland.

In this and in several of M. D'Orbigny's descriptions, the French and Latin versions differ. I have taken the French as being probably the correct one.

23. SEPIA INDICA.

Body short, round, smooth. Fins thick, narrow, broader behind. Sessile arms short, unequal; order of length, 4, 3, 1, 1, hemispherical. Tentacular arms very long, slender; cups small, equal-sized, in ten or twelve series. Shell ovate, wrinkled, acuminate at each end, shortly beaked behind. Thick convex diaphragm behind beneath.

Sepia Blainvillei D'Orb. & Féru. *Céph. Acét.* t. 21. Desh. 1837; *D'Orb. Moll. Viv. et Fos.* i. 295.

Sepia indica D'Orb. *Moll. Viv. et Fos.* i. 298. 1845.

? *S. australis* D'Orb. *Céphal. Acét. Sepia*, t. 7. f. 4. bone. *Moll. Viv. et Fos.* i. 294. not Quoy.

Hab. Bombay, New Holland.

a. Cape Upstart, Australia. In spirits. Presented by Jukes, Esq.

24. SEPIA MYRSUS.

Animal ———? Bone oblong, the hinder extremity rather produced, shelly, with a slight thickening with a blunt, rather produced, inner surface suddenly thickened, upper half convex, with a slight central depression.

Hab. China.

a. China. Shell. Dry.

25. SEPIA MESTUS.

Animal ———? Bone oblong, rounded behind; edge row behind, rapidly widening (surface destroyed); elongated, acute, recurved, shelly.

Australia.

b. Australia. Shell. Dry. Presented by Andrew Sinclair,
M. D. R. N.

*Sessile Arms with equal, small Cups. The upper Pair with two
Rows of Cups.*

26. SEPIA ELEGANS.

Ovate, oblong, elongate, smooth, acuminate anteriorly. Fins
very narrow. Head smooth. Sessile arms short, unequal; length,
3, 1, 2; cups spherical, oblique, in two rows on the dorsal
arm and the base of the other, and in four rows on their ends,
the second and middle rows of the latter larger. Tentacular
arms long, with five series of small cups and three much larger
ones; with the rings rather oblique and toothed. Shell elong-
ated, arched behind, very narrow, winged and pointed in
front, very narrow and winged behind, with a medial crest
internally.

*Sepia elegans D'Orb. Tab. Méth. Seiches, t. 8. f. 1—5. 1826;
Blainv. Dict. Sc. Nat. xlviii. 284., Faune Franç. 19.; Rang, Mag.
Zool. 1837, 74. t. 99.; D'Orb. et Féruss. Céph. Acét. Seiches, t.
5. f. 1—5. t. 27. f. 3—6.; D'Orb. Paléont. univ. t. 3. f. 6—8.,
Paléont. étrang. t. 3., Moll. Viv. et Fos. i. 285. t. 12. f. 6—8.*

hab. Mediterranean, Messina, Adriatic, Malaga, and Coast of
Spain.

27. SEPIA ORBIGNYANA.

Oblong, elongated, smooth. Fins narrow, thin. Head
very large. Sessile arms short, triangular, unequal; order of
length, 1, 4, 3, 2; cups subspherical, in two rows on the base of
the three upper pairs, and four on the ventral pair; horny rings
strong. Tentacular arms slender; club lanceolate; cups in five
series, with five or six very large ones in the middle line. Shell
elongated, grooved above, granular; narrow and acuminate
in front; narrowed, thin, rounded, and with an elongated re-
versed beak behind.—Head and back violet, beneath white.

*Sepia Orbignyana Féruss. D'Orb. Tab. Méth. des Céph. 66. 1826,
Blainv. Sc. Nat. 1826; Blainv. Faune Franç. 19.; D'Orb. et
Féruss. Céphal. Acét. Seiches, t. 5. t. 27. f. 1, 2.; D'Orb.
Paléont. univ. t. 4. f. 3, 4., Paléont. étrang. t. 4. f. 3, 4., Moll.
Viv. et Fos. i. 274. t. 13. f. 3, 4.*

hab. Atlantic Ocean and Mediterranean, Naples.

§§§ *Sessile Arms provided with very unequal-sized Cups one largest. Shell narrowed behind.*

28. *SEPIA CAPENSIS.*

Body ovate, oblong, smooth. Fins dilated behind. S short, strong; cups spherical, peduncled, very unequal the middle one largest. Tentacular arms scarcely cups slightly oblique, in three series, the middle three much largest, and with the rings toothed or edge. Shell much depressed, oblong, elongate, ended pointed in front, tapering, thin, very obtuse, and with projecting beak behind.

Sepia capensis D'Orb. *Tab. Méth. Céph. Seiches*, t. 1826, *Moll. Viv. et Fos.* i. 283.; D'Orb. et Féruss. t. 7. f. 1—3. t. 12. f. 7—11. t. 17. f. 18, 19.

Sepia australis Quoy & Gaim. *Voy. Ast. Zool.* 70. t. 1832, not D'Orb. 1826.

Hab. Cape of Good Hope.

Var. Shell larger, scarcely so arched and with more spine than in M. D'Orbigny's figure. Perhaps a distinct

a. Sydney. Shell. Dry. Presented by J. Edwards. R. N.

b. Australia. Shell. Dry. Presented by A. Smith. R. N.

4 § *Doubtful Recent Species.*

29. *SEPIA MUCRONATA.*

Sepia mucronata Rafin. *Précis des Découv. Somiol.* D'Orb. *Moll. Viv. et Fos.* i. 299.

Hab. Sicily. Perhaps this is the *S. elegans*.

30. *SEPIA ANTILLARUM.*

Sepia Antillarum D'Orb. *Moll. des Antilles*, i. 33. n. 8. *Viv. et Fos.* i. 300.

Sepia Brown, *Nat. Hist. of Jamaica*, 386.

Hab. Jamaica.

5 § *Fossil Species.*

* *Tertiary, Paris Basin.*

31. *SEPIA SEPIOIDEA.*

Shell thick, narrow behind; beak thick, elongate, at lamina thick, reflexed, deeply radiated, edge too callosity deeply rugose.

tard, *Mém.* t. 2. f. 30.

le Seiche *Cuvier*, *Ann. Sci. Nat.* ii. 482. t. 22. f. 1, 2. 1824.

ptera Sepioidea *Blainv. Malac.* add. 621. t. 7. 1825., *Mém. Belemn.* 110. t. 1. f. 2.

ia Cuvieri *D'Orb. Tab. Céphal.* 67. 1825; *Galeotti, Mem. del Trab.* 140. 1837; *Desh. Fos. Paris*, 758. t. 101. f. 7, 8, 9.

sepia *Cuvieri Voltz, Jahrb.* 410. 1830; *D'Orb. Ann. Sci. Nat.* vii. t. 11. f. 11. 13. 1842.

ia longispina *Desh. Fos. Paris*, 757. t. 101. f. 4, 5, 6. 1837.

angirostris *Desh. F. P.* 757. t. 101. f. 10, 11, 12. 1837.

blainvillii *Desh. F. P.* 757. t. 101. f. 13, 14, 15, 1837.

epioidea *D'Orb. & Féruss. Céph. Acét. Sepia*, t. 3. f. 5. t. 14.

4—12. t. 16. f. 7. 9.; *D'Orb. Paléont. univ.* t. 7. f. 4. 8., *Moll.*

iv. et Fos. i. 269.

Paris Basin.

a. End of shell and beak. Paris. Presented by J. E. Gray, Esq.

32. SEPIA COMPRESSA.

ll hinder extremity very much compressed laterally; beak thick, acute, recurved, lower plate short; lower callosity narrow, prominent; cavity slender, deep, marked with arched striae.

ptera compressa *Blainv. Belemn.* 110. t. 4. f. 10. 1837.

ia Defrancii *Desh. Fos. Paris*, 759. t. 101. f. 1. 3. 1837.

ia compressa *D'Orb. & Féruss. Céph. Acét. Sepia*, t. 16. f. 4. 6. 339; *D'Orb. Paléont. univ.* t. 7. f. 1. 3., *Moll. Viv. et Fos.* i.

71.

Paris Basin.

** *Upper Oxford Clay.*

33. SEPIA HASTIFORMIS.

ll elongate, depressed, hastate, ornamented with longitudinal lines of large tubercles, attenuated in front, dilated behind, sides winged and blunt.

Knorr, Samml. i. t. 22. f. 2. ?

ia hastiformis *Rüppell, Abbild. Besch.* 9. t. 3. f. 2. 1829; *D'Orb. & Féruss. Céph. Acét. Seiches*, t. 16. f. 1, 2.; *D'Orb. Paléont.*

univ. t. 5. f. 4. 6., *Moll. Viv. et Fos.* 265.

Lithographic Stone, Solenhofen.

34. SEPIA CAUDATA.

ll elongate, with transverse lines of large tubercles, attenuated and produced in front, dilated and winged behind. ..

Sepia caudata *Munster, Taschenb.* 252. 1837; *Féruss. Céph. Acét. Sepia*, t. 15. f. 1, 2.; *D'Orb. Paléont. univ.* 1. 3., *Moll. Viv. et Fos.* i. 267.

S. hastiformis (adult) *D'Orb.* l. c. 267. ?

Fos. Oxford Clay.

35. SEPIA ANTIQUA.

Shell depressed, with concentric lines of very small attenuated in front; dilated, winged, and pointed behind.

Sepia antiqua *Munster, Taschenb.* 252. 1837; *D'Orb. Céph. Acét. Sepia*, t. 14. f. 1, 2.; *D'Orb. Paléont. univ.* 3., *Moll. Viv. et Fos.* i. 266.

Fos. Lithographic Stone, Solenhofen.

36. SEPIA LINGULATA.

Shell ovate, oblong, with concentric lines of tubercles; a before and behind.

Sepia lingulata *Munster, Taschenb.* 252. 1827; *D'Orb. Céph. Acét. Sepia*, t. 14. f. 3. t. 15. f. 4, 5. t. 16. f. 2. 1839, *Paléont. univ.* 6., *Moll. Viv. et Fos.* i. 268.

Sepia obscura *Munster*, l. c. 252.

S. regularis *Munster*, l. c. 252.

S. gracilis *Munster*, l. c. 252.

Fos. Solenhofen.

37. SEPIA VENUSTA.

Shell ovate, compressed, transversely striated; subangula three-lobed and slightly winged behind.

Sepiolithes venustus *Munster, MS.*

Sepia venusta *Munster, Taschenb.* 252. 1837; *D'Orb. Céph. Acét. Sepia*, t. 15. f. 6. 1837; *D'Orb. Paléont. univ.* 3., *Moll. Viv. et Fos.* i. 268.

Fos. Solenhofen.

Suborder III. *BELEMNOPHORA*.

U calcareous, internal, chambered; chamber traversed by a siphon.

Gen. Polarnaxia Spirularia Rafin. Anal. Nat. 141. 1815.

Gen. Spiriformia and Belemnomorpha Bronn, Gesch. der Nat. iii. 36.

FAM. VII. LITUIDÆ.

U subcylindrical, oblong, end rounded; sometimes furnished with a thickened belt, and with a small semilunate fleshy fin on each side. Mantle free all round, cartilage on the inner side of the ventral surface linear.

Head covered with the skin, with a lower eyelid. Buccal membrane without cups.

Arms. Sessile arms triangular, tapering; cups numerous, equidistant, very small, slightly pedicelled in six longitudinal series. Tentacular arms elongate, peduncled, cylindrical; club ———? Funicle conical, with an apical valve.

U internal, shelly, spiral, placed symmetrically at the hinder part of the body, the last chamber being in the central line of the back; chambered, the chambers furnished with a siphon, the last chamber only large enough to contain a very small part of the animal.

Gen. Lituoidæ Owen, Trans. Zool. Soc. ii. 1836; D'Orb. Moll. Viv. et Fos. i. 160. 306. 1845.

Gen. Spirularia Gray, Proc. Zool. Soc. 1847, 206.

Gen. Spirularia (pars) Rafin. Anal. Nat. 141. 1815.

Gen. Spiroacea (pars) Desh. Ency. Méth. iii.

Gen. Spirularia (pars) Geinitz, Grund der Verst. 261. 1845.

Gen. Spiriformia Bronn, Gesch. de Nat. iii. 535.

Synopsis of Genera.

A. Shell thin, apex not coated.

Lituus.

A. *Shell thin; apex hooked, not enveloped in a thickened Coat.* — Recent.

1. LITUUS.

Body oblong, rather compressed. *Mantle* free, upper cated, with a projection of the margin on the middle of and one on each side of the siphuncle on the ventral side. *Siphuncle* two, small, caudal on the side of the extremity of the body of the body sometimes furnished with a central, rounded belt, with a central rounded cavity. — *Head* repressed; eyes large, covered with the skin. — *Ses* triangular, tapering, rounded externally; cups numerous, distant, very small, slightly pedicelled, in six longitudinal rings entire, or very minute, denticulated; third a shortly webbed, the rest free. *Tentacular arms* cylindrical; club ————. ? — *Siphuncle* with valve. — *Shell* calcareous, cylindrical, conical, tapering on the same plane, the whorls separate from each other. *Septa* concave outwards, with a shelly funnelsiphon on the inner or most curved side, traversing without communicating with each other. *Last chamber* the largest; the nucleus, or first-formed chamber, swollen, embedded, placed symmetrically, the larger portion

lar kind of fin on each side. It has been suggested that this may depend on the sex of the specimens. De Blainville's specimen is a female, but the sex of the others is unknown.

- lituus* Brown, *Jam.* 1756; *Humph. MS.* 1797.
Conch. Harmonia Gualtieri, 1742; *Breyer, Polyth.* 17 .
Conch. edum Humph. Mus. Calon. 1797, not Lam.
Spirula Lamck. Syst. 1801, *Hist.* ed. 2. xi. 280.; *Blainv. Anal. Franc. et étrang. Anal. et Phys.* i. 369. t. 1837; *Gray, Ann. and Mag. N. Hist.* xv. 257. 234. 445. t.; *D'Orb. Moll. Viv. et Fos.* i. 314.; *Owen, Zool. H. M. S. Samarang*, 1848.
Spirula a. Blainv. Malac. 1825; not *b* and *c*.
Spirulæa Péron & LeSueur.
Conch. Peronii Ammonis Rumph.
Conch. Lituus sp. *Lister*, 1685.

The following names have been applied to the *Shells* of this genus, but it is impossible to determine to which of the species (if they are distinct) the names belong:—

- Lituus* *exiguus* *Lister, Hist. sive Syn. lib. iv. t. 550. f. 2.*
Conch. Peronii Ammonis Rumph. Thesaur. t. 20. n. 1.
Conch. Peronii Hammonis legitimus Klein, Ostrac. 5. sp. 1. t. 1. n. 6.
Conch. Peronii Hammonis Géve, Monat. Belust. ou Essais Verest. t. 3. f. 8.; *Martini, Conch. Cab.* i. 274. t. 18. f. 1.
Lituus minor Brown, Nat. Hist. Jamaica, 398.
Lituus spirula *Linné, Syst. Nat.* 1767; *Schröter, Einleitung*, i. 13.; *Gmel. Syst. Nat.* 3371. n. 9.; *Schreber, Versuch.* i. 1.; *Burrow, Elements of Conchol.* t. 12. f. 3.
Spirula fragilis Lamck. Syst. des An. s. Vert. 102.; *Bosc, Hist. Nat. des Coq.* v. t. 52. f. 2, 3.; *Roissy, Buff. de Sonnin.* v. 15.; *Montfort, Conch. Syst.* 99.; *Schumacher, Vers. test.* 256.; *D'Orb. Moll. des Antilles*, i. 64. n. 16., *Moll. Viv. et Fos.* i. 315. t. 16.
Spirula australis Johnst. Edin. Journ. April, 1828, p. 74.
Spirula Peronii Lamarck. Hist. An. s. Vert. vii. 601. n. 1.; *D'Orb. Tab. des Céph.* 68., *Moll. des Canaries*, 24. n. 8.; *Blainville, Faune Franç.* 22. t. 3. n. f. 1.; *Sowerby, Genera of Shells*; *Blainv. Nouv. An. du Mus.* iii. 18. t. 1.; *Cuvier, Règne Anim.* t. 8. f. 1.; *Potiez et Mich. Gall. des Moll.* i. 9. n. 1.; *Reeve, Conch. Syst.* ii. 296. t. 298.

The posterior Part of the Body without any ring, and the last Whorls of the Shell exposed.—Males?—*Spirula*.

1. LITUUS PROTOTYPUS.

- Spirula prototypus Péron, Voy. Terres Austral.* t. 30. f. 4. 1840, *cop. Gray, Ann. N. H.* xv. t. 15. f. 7.; *D'Orb. Moll. Viv. et Fos.* t. 16. 2.; *Blainville, Man.* t. . f. .; *cop. Gray, l. c. t. 15. f. 6.*

Spirula australis Lamck. *Ency. Méth.* t. 465. f. 5. 18—
Gray, l. c. xv. t. 15. f. 5.; *D'Orb. Moll. Viv. et Fos.* t. 1
Spirula Peronii Lamck. *Hist. Anim. s. V.* vii. 601. ?; (
Adams, Zool. Voy. Samarang, Moll. 13. 15. t. 4. f. 1. 4
 11, 12, 13, 14, 15.

Hab. Australia ?

** *The posterior Part of the Body furnished with a circle covering and concealing the Shell, and with semicircular appendages on each Side.*—Lituus.

2. LITUUS LÆVIS.

Mantle smooth.

Spirula ——— ? *Gray, Ann. Nat. Hist.* xv. 257. f. 5. f. 445.

Spirula Peronii ? *Reeve, Elem. Conch.* 16. t. A. f. a. d. n (not Lamck.).

Spirula australis Owen, in *Adams, Zool. Voy. Samarang, M* 13. t. 4. f. 2. 8. 1848, not Lamck.

Hab. New Zealand. Mus. Mr. Cuming.

3. LITUUS VULGARIS.

Mantle pitted with close-set angular depressions, giving i marked, reticulated character; disk and appendages sm
Spirula vulgaris Leach, *MS.* 1817; *Leach, Tuckey, Voy* append.

Spirula ——— ? *Blainville, Ann. Franç. et étrang. An* i. 369. t. ? 1837, cop. *Zool. Voy. Samarang, Moll.* t. 4 cop. *D'Orb. Moll. Viv. et Fos.* t. 16. f. 3. 12.

Spirula reticulata Owen, in *Adams, Zool. Voy. Samarang* 13. t. 4. f. 3. 9, 10.

Hab. Timor.

a. Africa. Skin of the body and shell. In spirits. I by J. Cranch, Esq., Congo Expedition.

B. *Shell apex enveloped in a thickened laminal Coat, behind.*—Fossil.

2. SPIRULIROSTRA.

Animal ——— ? only known fossil. — *Shell calcar volute on the same plane, the whole separate from ea chambered. Septa transverse, concave, with a siph inner or arched side. Shelly case covering the w*

ell, rather produced on each side in front, and produced behind into an acute conical tail, leaving a small concavity over the tip in front of the arch of the whorls.

ulirostra *D'Orb. Ann. Sci. Nat.* xvii. 362. t. 11. f. 16. 1842, *Coll. Viv. et Fos.* i. 312.; *Desh.* in *Lamck. Hist.* xi. 248.

1. SPIRULIROSTRA BELLARDII.

ulirostra *Bellardii D'Orb. Ann. Sci. Nat.* xvii. 302. t. 11. f. 3., *Moll. Viv. et Fos.* i. 312. t. 15.

Middle Tertiary, Turin.

3. BELOPTERA.

nal —————? only known fossil. — *Shell* calcareous, conical, straight, or slightly curved, chambered; chambers pierced, with a siphon on the ———? edge. Enveloping case elongate, sub-cylindrical in front, and sometimes winged on the sides, ending in a blunt beak at the hinder end.

Lower Tertiary formations.

optera *Deshayes, MS, Ency. Méth.* ii. 135. 1830, in *Lamck. Hist.* xi. 243.; *Desh. MS.* in *Blainv. Malac. Supp.* 621. t. 11. f. 25; *Mém. Belemn.* 3. f. 3. 1827; *Sow. Min. Fos.* t. 591.; *D'Orb. et Féruss. Céphul. Acét.* t. 3. f. 7. 9. t. 21. f. 11, 12. 1839, *Coll. Viv. et Fos.* i. 308.

ia species *D'Orb. & Féruss. Tab. Méth. Céph.* 67. 1825.

ia (subgenus) *Gray, Proc. Zool. Soc.* 1847, 205.

* *Lateral Expansions distinct.*

1. BELOPTERA BELEMNITOÏDEA.

l oval, oblong, curved, expanded on the sides; above convex, beneath concave; beak blunt, straight.

ptera *belemnitoïdea Blainv. Malac. Supp.* 621. t. 11. f. 8. 25; *Dal. Sci. Nat.* xl. viii. 290. t. 20. f. 8.; *Desh. E. M.* ii. 5., *Fos. Paris,* 762. t. c. f. 4, 5, 6.; *D'Orb. Moll. Viv. et Fos.* 808. t. 14. f. 1. 4.

ptere *Deshayes Blainv. Belemn.* t. 1. f. 3.

a *Parisiensis D'Orb. & Féruss. Tab. Céph.* 67. 1825, *Ann. Sci. Nat.* ii. 482. vii. 57.

ptera *Parisiensis D'Orb. Gray, P. Z. Soc.* 1847, 205.

de *Poisson Guet. Mém.* v. t. 2. f. 11, 12.

ptera *Belemnoides Blainv.*

is. Paris Basin.

a. Adult, with large wing-like expansion and deep cavity.
Paris. Presented by J. E. Gray, Esq.

- b. Broken, or young? Wings very slightly expanded thin, and cavity very small, shallow. Paris. Pre by J. E. Gray, Esq.

** *Lateral Expansion none.*

2. **BELOPTERA LEVESQUEI.**

Shell oblong, elongate, arched, narrow, cylindrical; three in front; beaked, blunt, and striated behind.

Beloptera Levesquei D'Orb. et Féruss. Céph. Acét. t. 20. f. 1. D'Orb. Moll. Viv. et Fos. i. 307. t. 11. f. 5. 7.

Fos. Paris Basin.

3. **BELOPTERA ANOMALA.**

Shell oblong, elongate, depressed, arched, concave, with the verged ridges above, behind blunt.

Beloptera anomala Sow. Min. Conch. vi. 184. t. 591. f. 2. D'Orb. Moll. Viv. et Fos. i. 309. t. 14. f. 8. 10.

Fos. London Clay.

FAM. VIII. **BELEMNITIDÆ.**

Animal elongated ————— ? only known fossil.

Shell internal, (horny or) calcareous; the apex conical, chambers concave, simple, pierced with a marginal sipho on the ventral side; sometimes covered externally with conical layers, forming a more or less elongate, subcylindrical, style.

Belemnitidæ Owen, Trans. Zool. Soc. ii. 1836; D'Orb. Moll. et Fos. i. 443. 1845.

Onychoteuthidæ (pars) Gray, P. Z. Soc. 1847, 206.

Cephalopodes polythames (pars) Lamck. Hist. ed. 2. xi. 266
Belemnomorpha Bronn, Gesch. der Nat. iii. 536.

Synopsis of the Genera.

- A. *Shell conical, naked, not covered with any externally developed Coat.*
1. **CONOTEUTHIS.** Shell with strong longitudinal keel in the middle of the back.

l conical, covered with an externally deposited Coat, forming a more or less elongated cylindrical Style.

a. *External Coat thin.*

MNOTEUTHIS.

b. *External Coat forming an elongate Style.*

NOCAMAX. The conical cavity in the style with an elongated longitudinal fissure on the lower side.

MINITES. The conical cavity in the style with an entire edge and no longitudinal figure.

l conical, thin, naked, not covered with any externally deposited probably produced behind into a long, slender, dorsal plate.

1. CONOTEUTHIS.

— ? — *Shell.* Cone broad, rapidly enlarging, thin, smooth, marked with very slight rather oblique concentric lines of growth, not covered with any externally depositedaceous coat, with a well marked strong longitudinal keel on the middle of the back (probably produced into a slender elongated dorsal style). Septa transverse smooth.

this *D'Orb. An. Sci. Nat.* xvii. t. 12. f. 1. 5. 1842, *Paléont.* t. 30., *Paléont. Franç.* t. 1. supp., *Moll. Viv. et Fos.* i. 444. ; *Desh.* in *Lamck. Hist.* 240.

CONOTEUTHIS DUPINIANUS.

this *Dupinianus D'Orb. An. Sci. Nat.* xvii. t. 12. f. 1. 5., *nt. univ.* t. 30., *Moll. Viv. et Fos.* i. 444. t. 32.

Paris Basin.

l conical, thin, covered with a more or less thick externally deposited Coat.

a. *Outer Coat thin, merely covering the Shell.*

2. BELEMNOTEUTHIS.

elongate, subcylindrical. Fins lateral, rounded. Arms, peduncled, armed with two series of hooks (and round ?). — *Shell* internal, conical, thin, elongate, subcylindrical; conical, chambered; septa concave, even edged. Siphon at the edge of the septa, the conical upper part covered ex-

ternally with a thin externally deposited coat, which thinner above the apex; apex with two ridges on each of those of one surface ("the dorsal," *Mantell*) parallel, and (ventral?) rather diverging above.

Belemnoteuthis Pearce, *Proc. Geol. Soc.* 1842, ii. 593., *A. Hist.* 1842, ix. 578.

Belemniteuthis Gray, *Proc. Zool. Soc.* 1847, 206.; *C. London Geol. Jour.* i. 1847, 98, 99. t. 15. 16.; *Man. Trans.* 1848, 173.

Belemnite (animal and phragmocone) *Owen*, *Phil. Trans. D'Orbigny, Moll. Viv. et Fos.* i. t. 28. from Owen.

Dr. Mantell, in his restoration of this genus (*Phil. Trans.* 14. f. 3, 4.), seems to have overlooked the fact that the ventral part of the shell appears, as figured by Messrs. Owen and Cuvier, to be subcylindrical, like the upper part of the cone of the *Belemnites*.

1. BELEMNOTEUTHIS ANTIQUUS.

Belemnoteuthis Pearce, *Proc. Geol. Soc.* 1842, ii. 593., *A. Hist.* 1842.

Belemnoteuthis antiquus Cunnington, *Lond. Geol. Jour.* 15, 16.; *Mantell, Phil. Trans.* 1848, 175. t. 13. f. 2.; f. 1. ? 3, 4. t. 15. f. 5.

Belemnites Owenii (pars) *Pratt, MS.*; *Owen, Trans.* 1844, 83. t. 2, f. 6, 7, 8. (not t. 5.) t. 3. t. 4. f. 1. t. 5. f. 4.

Belemnosepia de Chippenham Chenu, *Leçon Elém. H.* 760. 1847, from Owen.

Belemnites Puzozianus (pars) *D'Orb. Moll. Viv. et Fos.* 28. from Owen (t. 29, 30. theoretical).

Fos. Oxford Clay, Wiltshire.

a. Fossil. The cone and the upper part of the remains of animal. Wiltshire. From Mr. R. Owen's collection.

b, c. The lower part of the shell only. Wiltshire.

b. *Outer Coat produced, forming a subcylindrical external part.*

3. ACTINOCAMAX.

Animal unknown.—*Cone* ———?; the externally deposited coat with an elongated longitudinal fissure in the lower side of the conical cavity.

nocamax Müller, *Trans. Zool. Soc.* ii. 64. 1823; Voltz, *Belemn.* i. 1830; *Blainv. Belemn.* 34. 1827.
 mnitella D'Orb. *Bull. Soc. Géol.* 1841, *Paléont. univ.* 1846, *Moll. Viv. et Fos.* i. 447.
 inocamax (pars) Voltz, *Ann. Sci. Nat.* xiii. 354. 1840.
 mnites Breyn. *Polyth.* 41. 1732; *Lamck. Syst. An. s. V.* 104. 1801, (B. paxillosa); *Montf. C. Syst.* 383. 1808.
 mnites (pars) *Lamck. Hist.* 16.
 inus (spine) *Beudant, Ann. Mus.* xvi. 1810.

1. ACTINOCAMAX VERUS.

Shell elongate, lanceolate, smooth; trigonal in front; dilated, depressed, and mucronately acuminated behind; sides with a deep impressed groove, evanescent behind. Shell truncated, radiately ribbed, slit below.

inocamax verus Müller, *Trans. Géol. Soc.* ii. 64. t. 9. f. 17. 823; *Voltz, Lehrb.* 1839, 522.
 mnites fusiformis *Young, Geol. York,* 14. t. 14. f. 2. ? 1822.
 genus *Blainv. Belem.* 59. n. 1 1827, *Dict. Sci. Nat.* f. 3.; *Desh. Ency.* ii. 124.; *Bronn, Lethæa,* ii. t. 83. f. 14.; *Roemer, Kreid.* 34.
 mucronatus (pars) *Sonn. Mem. Conch.* vi. 205. t. 600. f. 6, 7. 829.
 lanceolatus *Son. Mem. Conch.* v. 208. t. 600. f. 8, 9. 1829, not cloth; *Fusch, Pol. Paléon.* 162.; *Morris, Cat.* 177.
 mnitella vera D'Orb. *Bull. Géolog.* 1842, 359., *Paléont. univ.* 32. f. 1—6. 1846, *Moll. Viv. et Fos.* 447.
 inocamax *Blainvillei* Voltz, *Belem.* 35. 1830.
 mnitella *Galliennei* D'Orb. *Bull. Soc. Géol. F.* 1842; *Brey. Polyth.* 411. t. 7. f. 15. 1732.
 inus spine *Beudant, Ann. Mus.* xvi. t. 3. f. 8, 9, 1810; *Park. Org. Rem.* iii. t. 4. f. 19. 1811.

. Greensand.

a, b, c, d. Style only. Folkstone. Presented by J. E. Gray, Esq.

2. ACTINOCAMAX PAXILLOSA.

Shell elongate, subconical, rugose, cylindrical, and slit in front, with ramulose flattened grooves on the sides, many-branched behind; mucronately acuminated behind. Shell raised; angle 9" or 20".

mnites *Breyn. Polyth.* 41. t. 7. f. 1—14.; *Klein, Tab. Mar.* 0. t. 7. f. 3, 4, 5.
 mnites *Fanjas St. Pierre,* 127. t. 32. f. 3.
 mnites *paxillosa* *Lamck. Syst. A. s. V.* 104. 1801.

- B. paxillosus* *Montf. Conch. Syst.* i. 383. 1808; *Park. O.* iii. 9. f. 1.; *Schloth. Tasch.* vii. 31. 70. 100, 101. (part).
B. mucronatus *Schloth. Tasch.* vii. 3. 1813, *Petref.* 47.; *Fos. S. D.* t. 16. f. 1.; *Brong. et Cuv. Géol. Par.* t. 3. f. 1. *Nelson, Act. Holm.* 1825, 339., *Petref. Suec.* 9. t. 2. *Blainv. Belemn.* 7. t. 1. f. 12*.; *Sonn. Mem. Conch.* t. 60. 4.; *Desh. E. M.* ii. 125.; *Cuv. Règ. Ann. Ill.* t. 11. f. 1.; *B. cylindrus* *Wahlenb.* 1821.
 ? *B. coniformis* *Park. Org. Rem.* iii. 127. 132. t. 8. f. 10. f. 1. 1811.
B. subconicus *Lamck. Hist.* vii. 592. 1822 (part).
B. fusoides *Lamck. Hist.* vii. 1822.
B. electrinus *Müller, Belemn.* 51. t. 8. f. 2.
B. Osterfieldi *Blainv. Belemn.* 62. t. 1. f. 8.
B. Allani *Flem. B. A.* 240. 1828.
B. americanus *Morton, Amer. Jour.* xvii. 281. xviii. t. 1. *Keferst.* 1834, 422.
Belemnitella mucronata *D'Orb. Paléont. Fran. Ter. C.* *Murchison, Russia,* 489. t. 43. f. 1—4., *Moll. Viv. et Fos.* t. 33. f. 1—6.
 ? *Belemnites ambiguus* *Morton, Silliman, Jour.* xviii. t. 1.
 ? *Belemnitella ambigua* *D'Orb. Paléont. étrang.* t. 27. 1. *Moll. Viv. et Fos.* i. 436. t. 33. f. 13, 14. from Morton.

Fos. Chalk.

- a, b. Style from chalk. Norwich. Presented by Gerrard.
 c, d. From chalk. Kent. Presented by J. E. Gray

3. ACTINOCAMAX QUADRATA.

Shell subquadrate, short. Style elongate, subcylindrical, pressed and fissured in front, acuminate and mucronate, lateral groove broad, bifurcate, and branched behind.

- Belemnites quadratus* *Defrance Cabinet; Blainv. Belemn.* f. 9. 1827; *D'Orb. Ter. Cret.* 160. t. 6. f. 5. 10.
B. granulatus *Blainv. Belemn.* 63. t. 1. f. 10. (not Zietz) *Sow. M. C.* vi. 207. t. 600. f. 3. 5.; *Desh. E. M. Potiez et Mich. Gal. Moll.* i. 22.; *Roemer, Kreid.* 84. *Cat.* 177.
B. striatus *Blainv. Belemn.* 64. t. 1. f. 11. (not Hartz) *Desh. E. M.* ii. 135.
Belemnitella quadrata *D'Orb. Paléont. univ.* t. 34. f. 51. *Viv. et Fos.* i. 451.
 *. White Chalk. France, England.

4. ACTINOCAMAX SUBVENTRICOSA.

Shell conical, concentrically rugose. Style elongate, subcylindrical, smooth, rather trigonal, compressed in front, depressed and mucronate at the tip behind; lateral grooves flattened, simple, evanescent behind.

Belemnites subventricosus *Wahlenb. Act. Upsal.* viii. 80. 1821; *Voltz, Belem.* 64. t. 8. f. 1.

camillatus *Nelson, Act. Holm.* 1825, 340., *Petref. Suec.* 10. t. 2. p. 2.; *Hissing, Lethæa Suec.* 31. t. 10. f. 7.; *Roemer, Kreid.* 84. *Scaniae Blainv. Belemn.* 61. 1827, *Dict. Sci. Nat.* f. 6.; *Desh. M.* ii. 124.

Belemnitella subventricosa *D'Orb. Paléont. univ.* t. 31. f. 7. 12., *Moll. Viv. et Fos.* i. 454. t. 33. f. 7. 12.

Chalk. Sweden.

4. BELEMNITES.

Shell conical? ————. The externally deposited *style* with a entire margin to the edge of the conical cavity (which covered the shelly cone).

Belemnites *Lister*, 1678; *D'Orb. An. Sci. Nat.* xvii. 1842, *Paléont. Jur.* 1842, *Moll. Viv. et Fos.* i. 459.

Belemnita *Fleming, Brit. Anim.* 1828.

Belemnites (pars) *Ehrhart, Bel. Suec.* 1727; *Lamck. Hist.* (not *yst.* 1801).

Belemnites *tilus* *Belemnita* *Gmelin.*

Belemnites *solithis* *Montf. Conch. Syst.* i. 387. t. 97.

Belemnites *mas* *Montf. Conch. Syst.* i. 1808.

Belemnites *elois* *Montf. Conch. Syst.* i. 1808.

Belemnites *virhoe* *Montf. Conch. Syst.* i. 1808.

Belemnites *ocis* *Montf. Conch. Syst.* i. 1808.

Belemnites *ysaor* *Montf. Conch. Syst.* i. 1808.

Belemnites *solithes* *Montf. Conch. Syst.* i. 1808.

Belemnites *lites* *Montf. Conch. Syst.* i. 1808.

Belemnites *adragus* *Montf. Conch. Syst.* i. 1808.

Belemnites *damus* *Montf. Conch. Syst.* i. 1808.

Belemnites *latinites* *Rafin.*

Belemnites *inocamax* (pars) *Voltz, Ann. Sci. Nat.* xiii. 354. 1840, not *Güller*; *Philips, Hartmann.*

Belemnites *endobelus* *Blainv. Belemn.* 113.

Belemnites *psiphites* and *Gasterosiphites* *Duval.*

Belemnites *li*, *Notocæli*, and *Gastrocæli* *D'Orb. Paléont. univ., Moll. Viv. Fos.*

Belemnites *lopsis* *sp. Deslongchamps, Mém. des Soc. Norm.* v. 72. 1838.

like the processes on the side of the mouth of certain *Ar* but, on examining the specimen, I am very doubtful if pearance does not arise from an accidental fracture of t part of the conical sheath.

M. D'Orbigny describes the shell of this genus as h enlarged in front into a spatuliform dorsal plate, contracte with a conical cavity furnished with concave septa, | siphon on the ventral edge traversing all the cells, an externally with a shelly beak. The theoretical form of is represented by M. D'Orbigny in *Ann. Sci. Nat.* 18 *Paléont. Franç. Ter. Juras.* t. 2. f. 1, 2. t. 3. f. 1, 2, 3. *Moll. Viv. et Fos.* i. t. 35, 36. The authority for this d pansion appears to rest on certain lines seen on the outsi cone of *Belemnites giganteus* var. *aalensis*, which, h resemble the grooves found on the dorsal surface of th the cuttle-fish, *Sepia* or *Loligo*, and hence he believes t a similar enlarged dorsal plate. This may be the case v species, though, I believe, no specimens have been found to this theory, and the external surface of the conical part *Belemnites* shows no indication of any such grooves; but arise from two or more distinct forms being confounde present genus *Belemnites*.

Synopsis of the Sections of the Genus.

essor Bronn, in forming this table, has, by mistake, transposed the position of the grooves (see *Gesch. der Naturg.* iii. 150.).

hout any dorsal or ventral Groove.—Acæli Bronn, *Gesch. Nat.* iii. 150.

is more or less conical, sometimes grooved or ridged at the inner Extremity, but without any lateral Grooves in Front.—Cuvierii *D'Orb. Ter. Jur.* i. 73., *Moll. Viv. et Fos.* i. 480.; Bronn, l. c. 150.

. BELEMNITES NIGER.

elongate, subcylindrical, subquadrate, posteriorly acuminate, twice bisulcate, anteriorly dilated; aperture somewhat square-shaped; alveolus 20°.

Belemnites niger Lister, *Conch. Angl.* t. 7. 31. 226. ? 1678; *D'Orb. Léont. wuv.* t. 39. t. 40. f. 1—5., *Moll. Viv. et Fos.* i. 483.; *Belemn. n.* 2.

Belemnites coniformis Parkinson, *Organ. Rem.* iii. 127. t. 8. f. 11. 15. ? 1811.

Belemnites paxillosus Schlotheim, *Taschenb.* vii. 51. 70. 1813 (not publ. 1808); *Schloth. Petref.* 46. n. 3.; *Blainville, Belemnites,* n. 43.; *Voltz, Belemn.* 50. t. 6. f. 2. t. 7. f. 2.; *Zieten, Wurt.* 29. t. 23. f. 1.; *Hartmann, Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 427. n. 68.; *Roemer, Ool.* 171. n. 17.; *Pusch, Polers. Léont.* 162. n. 5.; *Morris, Brit. Fos.* 177.

Belemnites vulgaris Young, *Geol. Surv. of Yorksh.* 256. t. 14. f. 1. 822.

Belemnites apicicurvatus Blainv. *Belemn.* 76. n. 16. t. 2. f. 6. 1827; *Zieten, Wurt.* 30. t. 23. f. 4.; *Keferst. Dict. Nat.* 424. n. 14. 34).

Belemnites apicicurvus Hartmann, *Wurt.* 15. n. 1. 1830.

Belemnites bisulcatus Blainv. *Belemn.* 79. n. 19. t. 2. f. 7. 1827, t. t. f. 6, 7.; *Hartmann, Zieten, Wurt.* 31. t. 24. f. 2. p. 16. n. 174.; *Potiez et Mich. Gal.* i. 22. n. 4. *Desh. Encycl.* ii. 128. n. 12.; *Keferst. Dict. Nat.* 424. n. 19. *Roemer, Nord. Ool.* 171. n. 18.

Belemnites crassus Voltz, *Belemn.* 53. n. 10. t. 7. f. 2. 1830; *Zieten, Wurt.* t. 22. f. 1.; *Keferst. Dict. Nat.* 425. n. 31.; *Roemer, Ool.* 174.; *Potiez et Mich. Gal.* i. 22. n. 4.

Belemnites subaduncatus Zieten, *Wurt.* 27. t. 21. f. 4. 1830 (not publ.); *Voltz, Belemn.* 48. n. 8. t. 3. f. 2. 1830; *Keferst. Dict. Nat.* 428. n. 91.

Belemnites subaduncus Roemer, *Ool.* 170. n. 15. 1835.

Belemnites teres Sthal. *Zieten, Wurt.* 28. t. 21. f. 8. deformed, 170; *Hehl. Zieten,* t. 21. f. 2. ? deformed.

- Belemnites quadrisulcatus* Hartmann, *Ziet.* 31. t. 24. f. 3.
Keferst. 427. n. 78.; *Roemer, Ool.* 175.
Belemnites affinis Munster, zur *Belemn.* 14. t. 2. f. 1. 3.
 Raspail, 1829); *Keferst.* 424. n. 9.
Belemnites lævigatus Zieten, *Wurt.* 282, t. 21, f. 12.? 183
 426. n. 53.; *Roemer, Ool.* 169.
Belemnites turgidus Schub. *Zieten, Wurt.* 28. t. 22. f. 1.
Belemnites striatulus Roemer, *Nord. Ool.* 165. n. 3.? 18
Belemnites impressus Roemer, *Ool.* 170. n. 16. t. 16. f. 1.
Belemnites Bruguieranus D'Orb. *Paléont. Franç. Terr.*
 t. 6. t. 7. f. 15. 1842.

Hab. Middle Lias.

2. BELEMNITES IRREGULARIS.

Shell (young) short, compressed, posteriorly obtuse, sharp-pointed; (adult) very long, compressed, rather posteriorly attenuate, rather obtuse, longitudinally grooved; aperture compressed; alveolus at an angle 22° .

- Belemnites irregularis* Schloth. *Min. Tasch.* vii. 70. t. 3.
Die Petref. 48. n. 5.; *Blainv. Belemn.* 104. n. 46., *Z.*
 30. t. 23. f. 6.; *Hartmann, Wurt.* 16.; *Keferst. Die*
 n. 52.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 76. t. 5. a
 f. 2—8., *Paléont. univ.* 44. t. 43. f. 9—11., *Moll. Vi*
 496. n. 13.
Belemnites acuarius Schloth. *Petref.* 46. n. 2. 182
Belemn. 96. n. 36.; *Munster, Belemn.* 15. t. 2. f. 5,
Wurt. 282. t. 21. f. 12.?

- belus striatus *Blainv. Belemn.* 113. t. 4. f. 13. 1827? (not
)
 ites striatus *Keferst.* 428. n. 90. 1834.
 belus lævis *Blainv. Belemn.* 112. t. 4. f. 14. ? 1827.
 ites lævis *Roemer, Ool.* 115. n. 4. ? 1836.
 ites gracilis *Hell. Zieten, Wurt.* 28. t. 22. f. 2. 1830 (not
 ail, 1829, nor Phillips); *Keferst.* 426. n. 46.; *Roemer,*
 175.
 ites lagenæformis *Hartmann, Zieten, Wurt.* 33. t. 25. f. 1.
 ; *Keferst.* 426. n. 54.
 ites pygmæus *Zieten, Wurt.* 28. t. . f. 9. ? 1830; *Keferst.*
 n. 77.
 ites rostratus *Zieten, Wurt.* 30. t. 23. f. 5. 1830 (not ros-
 s *Raspail,* 1829); *Keferst.* 427. n. 83.; *Roemer, Ool.* 175.
 ites longisulcatus *Voltz, Mem.* 57. t. 6. f. 1. 1830; *Keferst.*
 n. 58; *Roemer, Ool.* 174.
 ites tenuis *Munst. Belemn.* t. 22. f. 5. 6. 1830; *Hartmann,*
 t. 17.; *Keferst.* 428. n. 99.; *Roemer, Ool.* 169. n. 13.
 ites semistriatus *Munst. Belemn.* t. 2. f. 4. 1830; *Keferst.*
 n. 88.

Upper Lias.

BELEMNITES TRIPARTITUS.

young) elongate, slender, compressed, posteriorly attenuately
 , beneath one-grooved; aperture compressed; (adult) shell
 al, compressed, posteriorly acuminate, three-grooved, an-
 ly dilated; aperture oval, compressed; alveolus at an angle
 ° to 25°.

- ites tripartitus *Schloth. Petref.* 48. n. 6. 1820; *Miller,*
Geol. Soc. 1823, 66. t. 8. f. 10—13. (the extremity);
Wille, Belemn. 82. n. 21. t. 4. f. 4.; *Hartmann, Wurt.* 17.;
rst. Dict. Nat. 428. n. 104.; *Roemer, Ool.* .; *D'Orb.*
nt. univ. t. 45. f. 46., *Terr. Jur. Supp.* t. 2., *Moll. Viv. et*
i. 501., *Belemn.* n. 14.
 ites elongatus *Miller, Trans. Geol. Soc.* t. 7. f. 6, 7. (1823);
W. Belemn. 95. n. 34. t. 4. f. 6.; *Sow. Min. Conch.* vi. 178.;
n, Wurt. 28. t. 22. f. 6.; *Hartmann, Wurt.* 16.; *Keferst.*
 n. 39.; *Roemer, Ool.* 169.; *D'Orb. Paléont. Franç. Terr. Jur.*
 n. 8. t. 8. f. 6—11.; *Matheson, Catal.* 258. n. 277.; *Morris,*
Fos. 177.
 ites aduncatus *Miller,* t. 8. f. 6. deformed, 1823; *Blainv.*
mn. 77. n. 17. t. 2. f. 6. t. 8. f. 6—11.; *Keferst.* 424. n. 8.
 ites trisulcatus *Blainv. Belemn.* 83. n. 22. t. 5. f. 13. the
 emity, 1827; *Hartmann, Zieten,* t. 24. f. 3., *Wurt.* 17.;
st. 428. n. 105.; *Roemer, Ool.* 172. n. 20.

- Belemnites ovatus* *Blainv. Belemn.* 88. n. 27. t. 3. 1
Desh. Encyc. Méth. ii. 130. n. 20.
- Belemnites unisulcatus* *Blainv. Belemn.* 81. t. 5. f.
 1827; *Desh. Encyc.* ii. 129. n. 13.; *Hartman, Zieten*
 t. 24. f. 1., *Wurt.* 17.; *Keferst.* 429. n. 112.; *D'Orb.*
Franç. i. 88. n. 7. t. 8. f. 1—5.
- Belemnites compressus* *Phillips, Geol. Yorksh.* t. 12. 1
Voltz, Belemn. 53. t. 11. f. n. 2.; *Roemer, Ool.* 171. n.
Paléont. Franç. Terr. Jur. t. 6. f. 3—8.; *Matheson,*
 278.
- Belemnites trifidus* *Voltz, Belemn.* 62. n. 15. t. 7. f.
ferst. 428. n. 403.; *Morris, Brit. Fos.* 177.
- Belemnites oxyconus* *Hel. Zieten. Wurt.* 27. t. 21. f.
ferst. 427. n. 67.; *Roemer, Ool.* 175.
- Belemnites subula* *Desh. Encyc. Méth.* ii. 130. n. 17.
- Belemnites ornithocephalus* *Theodori, Roemer, Ool.*
 14. 1836.
- Plott, Philos. Trans.* xii. t. 3. f. 8. 1764.
- Hab.* Upper Lias.

4. BELEMNITES UMBILICATUS.

Shell elongate, subcylindrical, beneath depressed, prominent, subumbilicated, anteriorly somewhat dilated roundish; alveolus 19°.

- Belemnites umbilicatus* *Blainv. Belemn.* 97. n. 37. t. 3. 1
Desh. Encycl. 132. n. 23. (1830); *Hartmann, Wurt.*
 1839; *Keferst. Dict. Nat.* 429. n. 109.; *D'Orb. P.*
Terr. Jur. i. 86. t. 7. f. 6—11., *Moll. Viv. et Fos.* i.
 n. 3.
- Belemnites clavatus* *Blainv. Belemn.* t. 3. f. 12. f. b. c.
- Belemnites subdepressus* *Voltz, Mem.* 40. t. 2. f. 1. 1
 5. 1830; *Keferst. Dict. Nat.* 428. n. 93.; *Roemer, Ool.*
- Belemnites perforatus* *Voltz, Belemn.* 63. n. 16. t. 8
Keferst. Dict. Nat. 427. n. 71.
- Belemnites ventroplanus* *Voltz, Belemn.* 40. n. 4. t. 1
Keferst. Dict. Nat. 429. n. 113.; *Roemer, Ool.* 168
- Belemnites subclavatus* *Zieten, Wurt.* 29. t. 22. f. 5.
Wurt. 19.; *Keferst.* 428. n. 92.; *Roemer, Ool.* 167.
- Hab.* Middle Lias.

5. BELEMNITES LONGISSIMUS.

Shell very elongate, slender, compressed, anteriorly teriorly obtusely acuminated, with one longitudinal sides; aperture compressed.

Belemnites longissimus Miller, *Trans. Geol. Soc.* ii. 60. t. 8. f. 1, 2, 1823; *Blainv. Belemn.* 95. n. 35. t. 4. f. 7.; *Zieten, Wurt.* 28. t. 21. f. 10, 11.; *Keferst. Dict. Nat.* 426. n. 60.; *Roemer, Ool.* 168.; *Morris, Brit. Fos.* 177.; *D'Orb. Paléont. Franç. Terr. Jur. Suppl.* t. 1. f. 1—7., *Paléont. univ.* t. 43. f. 1—7., *Moll. Viv. et Fos.* i. 490., *Belemn.* n. 6.

Belemnites cylindricus *Blainv. Belemn.* 94. n. 33. t. 3. f. 10. 1827; *Desh. Encycl.* ii. 131. n. 22.; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 33.

Hab. Middle Lias.

6. BELEMNITES BREVIS.

Shell short, inflated, rather compressed, posteriorly acuminate pointed, anteriorly dilated; aperture square or compressed; alveolus oblique, at an angle of 28° .

Belemnites brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 2. (exclus. f. 1.) 1827; *Desh. Encycl.* ii. 131. n. 19.; *Hartmann, Wurt.* 16. n. 1.; *Keferst. Dict. Nat.* 425. n. 24.; *Galeotti, Brab.* 166. n. 13.; *D'Orb. Paléont. univ.* t. 38. f. 1—7., *Moll. Viv. et Fos.* i. 491., *Belemn.* n. 7.

Belemnites abbreviatus *Sow. Min. Conch.* vi. 178. t. 590. f. 9. (exclus. f. 2, 3.) 1828, not Miller; *D'Orb. Paléont. Franç. Terr. Jur.* i. 92. n. 9. t. 9. f. 1—7.; *Bronn, Fos. Conch.* 21. t. 2. f. 41, 42.

Belemnites breviformis *Voltz, Mem.* 43. n. 6. t. 2. f. 2, 3, 4. 1830; *Munster, Zieten, Wurt.* 27. t. 21. f. 7.; *Keferst. Dict. Nat.* 425. n. 25.; *Roemer, Ool.* 164. n. 1. t. 16. f. 8.; *Morris, Brit. Fos.* 177.

Belemnites pyramidatus *Schub. Zieten,* 29. t. 22. f. 9. ? 1830; *Keferst.* 427. n. 76.

s. pyramidalis *Roemer, Ool.* 169. 172. n. 21.

Belemnites incurvatus *Keferst.* 426. n. 51. 1834.

Belemnites conulus *Munster, Roemer, Nord. Ool.* 165. n. 2.

Belemnites acutus *Potiez & Mich.* 21. n. 1. 1838.

Hab. Upper Lias.

7. BELEMNITES ACUTUS.

Shell short, conical, rather compressed, posteriorly acuminate; aperture oval; alveolar cavity from 18° to 20° .

Belemnites acutus *Miller, Trans. of Geol. Soc.* ii. t. 8. f. 9. 1823 (not *Blainville*, 1827); *Sowerby, Min. Conch.* vi. 178. t. 590. f. 7, 8. 10.; *D'Orb.* 1842, *Paléont. Franç. Ter. Jur.* i. 94. n. 10. t. 9. f. 8—14., *Paléont. univ.* t. 38. f. 8—14., *Moll. Viv. et Fos.* t. 36. f. 1—3.; *Morris,* 1843, *Brit. Fos.* 177.

B. brevis *Blainv. Belemn.* 86. n. 26. t. 3. f. 1. exclus. f. 2, 3.
B. pyramidalis *Munster, Zieten, Wurt.* t. 24. f. 5. ?; *Lind.*
 1699, t. 25. f. 1583. ?

Hab. Superior Lias. France and England.

8. BELEMNITES CURTUS.

Shell short, conical, compressed, obtuse at apex, two-gro
 aperture triangular; alveolus with an angle of 28° .

Belemnites brevirostris *D'Orb. Paléont. Franç. Terr. Jur.*
 n. 11. t. 10. f. 1—6. 1842 (not *brevirostris Raspail*, 1829).
Belemnites curvus *D'Orb. Paléont. univ.* t. 42. f. 1—6. 1846,
Viv. et Fos. i. 495. *Belemn.* n. 11.

Hab. Middle Lias.

9. BELEMNITES FOURNELIANUS.

Shell short, compressed, posteriorly obtuse, laterally imp
 aperture compressed, oblong; alveolus at an angle of 17° .

Belemnites Fournelianus *D'Orb. Paléont. Franç. Terr. Ju*
 n. 12. t. 10. f. 7. 14., *Paléont. univ.* t. 42. f. 7. 14., *Moll.*
Fos. i. 489., *Belemn.* n. 5.

Hab. Middle Lias.

10. BELEMNITES NODOTIANUS.

Shell oblong, compressed, anteriorly dilated, posteriorly o
 mucronate, beneath grooved; aperture compressly squa
 veolus 25° .

Belemnites incurvatus *Zieten, Wurtemb.* 29. t. 22. f. 7. 18
incurvatus Raspail, 1829); *Keferst. Dict. Nat.* 426.
Roemer, Ool. 174.

Belemnites nodotianus *D'Orb. Paléont. Franç. Terr. Jur.* i
 13. t. 10. f. 15. 20. 1842, *Paléont. univ.* t. 42. f. 15. 20
Viv. et Fos. i. 495., *Belemn.* n. 12.

Hab. Upper Lias.

Fossils in Lower Oolite.

11. BELEMNITES GIGANTEUS.

Shell elongate, compressed, acuminate or somewhat inflat
 teriorly acuminate, laterally grooved, anteriorly dilated
 ture oval; alveolus at angle of from 20° to 23° .

Klein, Descript. Tab. t. 9. f. 314. 1731; *Borguet, Trait.*
trif. t. 45. f. 576. 1742; *Knorr, Mon.* iii. iv. 35A.; *Pt*
Org. Rem. iii. 126—128. t. 8. f. 8.

- mnites giganteus *Schloth. Min. Taschenb.* vii. 70. 1813; *Petref.* n. 1. 1820; *Hartmann, Wurt.* 16.; *Keferst. Dict. Nat.* 426. 46.; *Roemer, Ool.* 174.; *D'Orb. Paléont. Franc. Terr. Jur.* i. 2. t. 14, 15., *Paléont. univ.* t. 47, 48., *Moll. Viv. et Fos.* i. 504., *Leinn.* n. 15. (t. 35, 36. theoretical restoration).
- mnites ellipticus *Miller, Trans. Geol. Soc.* ii. t. 8. f. 14-17. 23.; *Blainv. Belemn.* 102. n. 44.; *Keferst.* 425. n. 38.; *Roemer, Ool.* 174.; *Morris, Brit. Fos.* 177.
- mnites abbreviatus *Miller, Trans. Geol. Soc.* 59. t. 8. f. 9, 10. 10. 1823; *Blainv. Belemn.* 91. n. 31. t. 4. f. 5.; *Sow. Min. Conch.* vi. 179. t. 590. f. 2, 3. (exclus. f. 9.); *Keferst.* 424. n. 2.
- mnites compressus *Blainv. Belemn.* 84. n. 24. t. 9. 1827; *Sow. Min. Conch.* vi. 692. t. 590. f. 4.; *Desh. Encyc.* ii. 129. n. 15.; *Stenon, Wurt.* 26. t. 20. f. 2.; *Hartmann, Wurt.* 16.; *Keferst.* 6. n. 29.
- mnites quinesulcatus *Blainv. Belemn.* 83. n. 22. t. 2. f. 8. 1827; *Phillips, Geol. Yorksh.* t. 9. f. 35.; *Zieten, Wurt.* 26. t. 20. f. 3.; *Hartm. Wurt.* 17.; *Keferst.* 427. n. 81.; *Roemer, Ool.* 173. n. 22.; *Morris, Brit. Fos.* 177.
- mnites gladius *Blainv. Belemn.* 86. n. 25. t. 2. f. 10., *Dict. Sc. Nat.* f. 10. 1827; *Desh. Encyc.* ii. 136. n. 18. 1830; *Keferst.* 6. n. 84.; *Roemer, Ool.* 174.
- mnites gigas *Blainv. Belemn.* 91. n. 32. t. 5. f. 20. (exclus. t. f. 9.) 1827.
- mnites aalensis *Voltz, Mem.* 60. t. 4. and 7. i. f. 7. 1830; *Stenon, Wurt.* 25. t. 24. f. 6.; *Keferst. Dict. Nat.* 423. n. 1.; *Roemer, Ool.* 174. n. 24.; *Morris, Brit. Fos.* 177.
- mnites longus *Voltz, Mem.* 58. n. 13. t. 3. f. 1. 1830; *Keferst.* 6. n. 59.; *Roemer, Ool.* 174.
- mnites grandis *Schubl. Zieten, Wurt.* 26. t. 20. f. 1. 1830; *Keferst.* 426. n. 48.; *Roemer, Ool.* 174.
- mnites acuminatus *Schubl. Zieten, Wurt.* t. 26. ? t. 20. f. 5. 30; *Keferst.* 424. n. 5.; *Roemer, Ool.* 175.
- mnites bipartitus *Hartmann, Zieten, Wurt.* 32. ? t. 14. f. 7. 30 (not *Blainv.* 1827); *Hartm. Wurt.* 16.; *Keferst.* 424. n. 18.
- mnites bicaniculatus *Hartm. Zieten, Wurt.* 32. ? t. 24. f. 1830 (not *Blainv.* 1827), *Hartm. Wurt.* 15.; *Keferst.* 424. 17.
- mnites quinquecanaliculatus *Hartm. Zieten, Wurt.* 32. ? t. 24. 12. 1830; *Keferst.* 427. n. 81.
- mnites *Milleri* *Desh. Encyc.* ii. 129. 1830.
- mnites anomalous *Roemer, Ool.* 173. n. 23. ? 1836.

ib. Lower Oolite.

Belemnites excentricus *Blainv. Belemn.* 90. n. 30. t. 3. f. 1.
Keferst. Dict. Nat. 425. n. 40.; *D'Orb. Paléont. Franç. Jur.* i. 120. n. 26. t. 17.

Belemnites abbreviatus *Morris, Brit. Fos.* 127. (in part) 1

Belemnites inæqualis *Roemer, Ool.* 166. n. 5. t. 12. f. 1. 18

Belemnites lævis *Roemer, Ool.* 165. n. 1.

Hab. Lower, Middle, and Upper Oxford Clay.

13. BELEMNITES PUZOZIANUS.

Shell elongate, cylindrical, compressed, posteriorly straight, minate, beneath rather compressly grooved; aperture pressed, rather square; alveolus at an angle of $16\frac{1}{2}^{\circ}$.

Belemnites Puzozianus (pars) *D'Orb. Paléont. Franç. T.* i. 118. t. 16. f. 1—6. 1842, *Paléont. univ.* t. 50. f. 9. t. 56. t. 56., *Paléont. étrang.* t. 31., *Paleont. Franç. Terr. J.* t. 3. f. 9., *Moll. Viv. et Fos.* i. 519.

Belemnites Owenii *Pratt, Owen, Phil. Trans.* 1844, t. 2. (not animal and phragmacone).

B. attenuatus *Mantell, Phil. Trans.* 1848, t. 15. f. 2, 3.

Hab. Lower and Middle Oxford Clay.

a, b. Fossil large, with part of the cone of the shell.
Clay, Wiltshire.

c, d. Small, with part of the cone of the shell. Oxf
Wiltshire.

15. BELEMNITES PANDERIANUS.

Shell short, rather conical, laterally compressed; posteriorly beneath impressed, acuminate; aperture compressed; alveolus 22° .
Belemnites aalensis Fischer, *Oryct. Genv. Moscow*, 173. t. 49. f. 1. ?
 337 (not Voltz).

Belemnites excentricus Fischer, *Revue des Fos. de Mosc.* n. 5. ?
 843 (not Blainv.).

Belemnites Panderianus D'Orb. *Murch. and Vern. Russia*, 423. n. 1. t. 30. 1844, *Paléont. univ.* t. 61., *Paléont. étrang.* 35., *Moll. Viv. et Fos.* i. 527., *Belemn.* n. 30.

Loc. Oxford Clay. Banks of the Volga.

16. BELEMNITES RUSSIENSIS.

Shell dilated, depressly conical, posteriorly longitudinally sulcated, groove short, disappearing; aperture depressed; alveolus at an angle of 20 degrees.

Belemnites Russiensis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 22. n. 4. t. 29. f. 10—16. 1844; *D'Orb. Paléont. univ.* t. 62. f. 1—6., *Paléont. étrang.* t. 36. f. 1—7., *Moll. Viv. et Fos.* i. 529. f. 31.

Loc. Oxford Clay, Russia. Rare.

17. BELEMNITES KIRGHISENSIS.

Shell elongately conical, somewhat square, beneath depressed, posteriorly longitudinally grooved; groove short, disappearing; aperture square; alveolus with an angle of 20 degrees.

Belemnites Kirghiensis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 23. n. 5. t. 29. f. 17—21. 1844; *D'Orb. Paléont. univ.* t. 62. f. 8—11., *Paléont. étrang.* t. 36. f. 8—11., *Moll. Viv. et Fos.* i. 29. n. 32.

Loc. Russia. Very rare.

18. BELEMNITES BOREALIS.

Shell elongate, rather spindle-shaped, anteriorly and posteriorly oval, compressed, impressed on the sides; aperture oval.

Belemnites borealis D'Orb. *Murch. Vern. and Keys. Russia*, ii. 20. n. 2. t. 28. f. 15—22. 1844; *D'Orb. Paléont. univ.* t. 62. f. 12—18., *Paléont. étrang.* t. 36. f. 12—18., *Moll. Viv. et Fos.* i. 30. n. 33.

Loc. Oxford Clay. Banks of the Volga.

i. 536. n. 39.

Hab. Portland Oolite.

Fossils in Greensand.

20. BELEMNITES SUBQUADRATUS.

Shell elongate, subcylindrical, smooth, anteriorly rather posteriorly rather depressed, inferiorly flatly depressed somewhat acute.

Belemnites subquadratus Roemer, *Nord. Ool.* 166. t. 16. *Nord. Kreidegeb.* 83. n. 1.; Geinitz, *Charak.* 68., *Char.* 68.; *D'Orb. Paléont. univ.* t. 71. f. 1—4., *Terr. Cret.* f. 1—4.; *Moll. Viv. et Fos.* i. 543. n. 45.

Belemnites Cornelianus D'Orb. *Terr. Cret.* i. 618. 1842.

Hab. (Etage Néocomien.)

†† *Style elongate, often clubbed, and with lateral Grooves.*
in Lias. *Clavati* D'Orb. *Moll. Viv. et Fos.* i. 481.
l. c. 150.

21. BELEMNITES CLAVATUS.

Shell very elongate, club-shaped, anteriorly dilated, slender middle, posteriorly inflated, rather mucronate, laterally sulcate; aperture compressed; alveolus — ?

Belemnites clavatus Blainv. *Belemn.* 97. n. 38. t. 3. f.

2. BELEMNITES EXILIS.

very long, subulate, slender, compressed, one-ribbed on the sides, posteriorly sharply acuminate; aperture compressed, rather square, angular; alveolus at an angle of 20°.

Belemnites exilis D'Orb. *Paléont. Franç. Terr. Jur.* i. 101. t. 15. — 12. 1842, *Paléont. univ.* t. 41. f. 6—12., *Moll. Viv. et Fos.* 93., *Belemn.* n. 9.

Upper Lias, very rare.

3. BELEMNITES TESSONIANUS.

elongate, slender, posteriorly obtuse, anteriorly dilated, above with two grooves, underneath with three grooves; alveolus oblique, at an angle of 27°.

Belemnites Tessonianus D'Orb. *Paléont. Franç. Terr. Jur.* i. 103. t. 1. f. 13—18. 1842, *Paléont. univ.* t. 41. f. 13—18., *Moll. Viv. et Fos.* i. 494., *Belemn.* n. 10.

Upper Lias, not common.

Ventral Groove distinct.—*Gastrocœli* D'Orb. l. c. i. 481.; *Bronn, Gesch. der Naturg.* iii. 150. *Notosiphites Duval, Belem.* 23. 29. 38.; see D'Orb. *Moll. Viv. et Fos.* i. 466.

Shell elongate, lanceolate, or conical, with a ventral Groove extending the whole length below. Lateral Grooves none.—Fossils in Lower and Great Oolite. *Canaliculati* D'Orb. *Moll. Viv. et Fos.* i. 481.; *Bronn,* l. c. 150.

4. BELEMNITES CANALICULATUS.

elongate, depressed, cylindrical, posteriorly acuminate, beneath longitudinally grooved; groove not interrupted, equally impressed; aperture depressed, beneath sinuated; alveolus at an angle of 25°.

Belemnites canaliculatus Schloth. *Petref.* 49. n. 9. 1820; *Hartm. Wurt.* 16.; *Keferst. Dict. Nat.* 425. n. 26.; *Zieten, Wurt.* 21. f. 1.; *Roemer, Ool.* 176. n. 26.; D'Orb. *Paléont. Franç. Terr. Jur.* 109. t. 13. f. 1—5., *Paléont. univ.* t. 51. f. 5, 6., *Moll. Viv. et Fos.* i. 510., *Belemn.* n. 18.

Lower Oolite.

5. BELEMNITES SULCATUS.

elongate, compressed anteriorly, depressed posteriorly, equal in thickness, posteriorly obtusely mucronate, grooved beneath; the groove disap-

424. n. 13. a.

Hab. Lower Oolite.

26. BELEMNITES UNICANALICULATUS.

Shell elongate, compressed, rather conical, posteriorly tuse, underneath longitudinally grooved; grooves anteriorly interrupted; aperture compressed, oval; an angle of 22° .

Belemnites acutus *Blainv. Belemn.* 69. t. 2. f. 3. Miller, 1823), *Dict. Sci. Nat.* 1827, f. 4.; *Desh. En* n. 26. 1830; *Zieten, Wurt.* 26. t. 21. f. 1. ?; *Keferst.* 424. n. 7.; *Mich. et Potiez, Gal.* i. 21. n. 1.

Belemnites Blainvillei *Voltz, Belemn.* 37. t. 1. f. 9. *Blainv. Catullo*, 1829); *Desh. Encyc. Méth.* ii. 1; *Keferst.* 424. n. 21.; *Roemer, Ool.* 176. n. 27.; *1 léont. Franç. Terr. Jur.* i. 107. t. 12. f. 9—16.

Belemnites unicanaliculatus *Hartm. Zieten, Wurt.* 32. *Keferst.* 429. n. 110.; *D'Orb. Paléont. univ.* t. 49. 50. f. 1, 2., *Paléont. Franç. Terr. Jur. Suppl.* t. 3. f. *Viv. et Fos.* i. 509., *Belemn.* n. 17.

Belemnites sulcatus *Munster.*

Hab. Lower Oolite.

28. BELEMNITES FLEURIANSUS.

l elongate, slender, anteriorly compressed, attenuated, posteriorly depressed, very acute, beneath longitudinally grooved; groove posteriorly and anteriorly not interrupted; aperture compressed; alveolus?

lemnites Fleuriansus *D'Orb. Paléont. Franç. Terr. Jur.* i. 111. 13. f. 14—18., *Paléont. univ.* t. 51. f. 14—18., *Moll. Viv. et Os.* i. 512., *Belemn.* n. 20.

. Great Oolite, rare.

Style elongate, generally lanceolate, with distinct lateral Grooves for a great part of the length. The ventral Groove is very deep in front.—*Hastati. Hibolithus Montf. Conch. Syst.* i. 387. t. 97. *Porodragus Montf.* 1808. *Actinocamax Voltz, Hartm.*

Fossils in Lias.

29. BELEMNITES TRICANALICULATUS.

l elongate, conical, posteriorly obtuse, longitudinally trisulcate; sulci not interrupted, excavated; aperture triangular; alveolus with an angle of 30°.

lemnites canaliculatus *Bauhin*, 34. ? 1698.

lemnites tricanaliculatus *Hartmann, Zieten, Wurt.* t. 32. t. 24. f. 1., *Wurt.* 17. n. 1.; *Keferst. Dict. Nat.* 428. n. 102.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 100. n. 14. t. 14. f. 1—5., *Paléont. univ.* t. 41. f. 1—5., *Moll. Viv. et Fos.* i. 492., *Belemn.* n. 8.

lemnites quadricanaliculatus *Hartmann, Zieten, Wurt.* 32. t. 24. 2. 1830, *Wurt.* 17.; *Keferst.* 427. n. 79.

. Upper Lias.

Fossils in Oxford Clay.

30. BELEMNITES HASTATUS.

ll elongate, slender, spindle-shaped, anteriorly dilated, compressed, posteriorly inflated, depressed, acutely mucronate, beneath grooved; groove disappearing posteriorly, interrupted; aperture rounded; alveolus at an angle of from 11 to 18°.

Bauhin, Hist. Fontes. 34. 1598; *Lloyd, Phil. Trans.* xxv. f. 1705.; *Borguet, Trait. des Petrif.* t. 45. f. 374. 1742; *Longius*, t. 37. 3.; *Journal de Phys. An.* ix. t. 1. f. D. E.

ololithes hastatus *Montf. Conch. Syst.* 386. 1808.

odragus restitutus *Montf. Conch. Syst.* 390. 1808.

lemnites fusiformis *Parkins, Org. Rem.* iii. 122. t. 8. f. 13. 1811; *Wang & Bird, Geol. Yorksh.* t. 14. f. 2.; *Miller, Trans. Geol.*

- Soc. ii. 61. t. 7. f. 22. t. 9. f. 5. 7.; *Blainv. Belemn.* 74. n. 1.
Hartmann, Wurt. 16.; *Keferst. Dict. Nat.* 426. n. 43.; *Roemer, Ool.* 176. n. 26.; *Pusch, Polens. Paléont.* 162. n. 3.; *Morris, Brit. Fos.* 177.
- Belemnites lanceolatus* *Schloth. Taschenb.* vii. 111. 1813 (lanceolatus *Sow.* 1829), *Petrif.* 49. n. 8.; *Pusch, Polens. Paléont.* 162. n. 2.
- Belemnites hastatus* *Blainv. Belemn.* 71. n. 12. t. 1. f. 4. t. 2. f. 5. f. 3., *Dict. Sc. Nat.* 1827, f. 5.; *Raspail, Ann. Sc. d'Obs.* t. 8. f. 91.; *Desh. Encyc.* ii. 127. n. 9.; *Hartm. Wurt.* 16. *Keferst.* 426. n. 50.; *Deslongch. Mém. Soc. Linn.* 38. t. 1. f. 5.; *D'Orb. Paléont. Franç. Terr. Jur.* i. 121. n. 27. t. 18. *Paléont. du Voy. de M. Homm. de Hell.* iii. 420. n. 1., *Paléont. univ.* t. 52, 53., *Moll. Viv. et Fos.* i. 513., *Belemn.* n. 21. t. 15—20.; *Matheson, Catal.* 258. n. 279.
- Belemnites semihastatus* *Blainv. Belemn.* 72. n. 13. t. 2. f. 5. t. f. 1, 2. 1827, *Zieten, Wurt.* 22. t. 22. f. 4.; *Hartmann, Wurt.* 17.; *Keferst. Dict.* 428. n. 88.; *Roemer, Ool.* 175. n. 25.; *Pusch, Polens. Paléont.* 162. n. 6.
- Belemnites gracilis* *Raspail, Ann. Sc. des Observ.* t. 5. f. 17, 1829; *Morris, Brit. Fos.* 177.
- Belemnites ferruginosus* *Voltz, Mem.* 36. t. 1. f. 8. 1830; *Keferst.* 425. n. 41.
- Actinocamax fusiformis* *Voltz, Mem.* 34. t. 1. f. 6. 1830.
- Actinocamax lanceolatus* *Hartm. Zieten,* t. 25. f. 3. 1830.
- Belemnites semisulcatus* *Munster, Belemn.* 7. t. 1. f. 1. 8. 15. 1830; *Keferst.* 428. n. 87.
- Belemnites pusillus* *Munster, Belemn.* 8. t. 1. f. 9, 10. young, 1830; *Keferst.* 427. n. 74.; *Roemer, Ool.* 177.
- Belemnites deformis* *Munster, Belemn.* 8. t. 1. f. 11. 1830; *Keferst.* 427. n. 34.
- Belemnites plano-hastatus* *Roemer, Nord. Ool.* 177. n. 30. t. 12. 2. 1836.
- Belemnites fusoïdes* *Potiez et Mich. Gall.* i. 22. n. 5. 1838.
- Hab.* Lower and Middle Oxford Clay.

31. BELEMNITES DUVALIANUS.

Shell elongate, slender, rather spindle-shaped, compressed, anteriorly attenuated, posteriorly acuminate, beneath groove, groove narrow, not interrupted; aperture oval, compressed.

Belemnites Duvalianus *D'Orb. Paléont. Franç. Terr. Jur.* i. 19. n. 29. t. 20. f. 6—10. 1842, *Paléont. univ.* t. 54. f. 6, 7., *Moll. Viv. et Fos.* i. 518., *Belemn.* n. 23.

Hab. Lower Oxford Clay.

32. BELEMNITES COQUANDUS.

Elongate, club-shaped, anteriorly attenuated, posteriorly thickened, sharp-pointed, beneath smooth, laterally grooved; apertures excavated posteriorly, and forked; alveolus?

Belemnites coquandus *D'Orb. Paléont. Franç. Terr. Jur.* i. 130. n. 30. t. 21. f. 11—18. 1842, *Paléont. univ.* t. 63. f. 11—18., *Moll. Viv. et Fos.* i. 533. n. 36.; *Matheson, Catal.* 258. n. 282.

Middle Oxford Clay.

33. BELEMNITES SAUVANAUSUS.

Elongate, anteriorly attenuate, posteriorly thickened, sharp-pointed, beneath anteriorly deeply slit; aperture somewhat square, beneath sinuated; alveolus, angle 20° .

Belemnites Sauvanausus *D'Orb. Paléont. Franç. Terr. Jur.* i. 127. n. 30. t. 21. f. 1—10. 1842, *Paléont. univ.* t. 63. f. 1—10., *Moll. Viv. et Fos.* i. 532. n. 35.; *Matheson, Catal.* 258. n. 281.

Sauvanosus *D'Orb.* l. c. 81.

ib. Middle Oxford Clay.

34. BELEMNITES DEDAYANUS.

Elongate, somewhat spindle-shaped, anteriorly compressed and attenuated, impressed laterally, posteriorly acuminate, beneath deep-grooved; groove posteriorly interrupted; aperture compressed, sinuated.

Belemnites Dedayanus *D'Orb. Paléont. Franç. Terr. Jur.* i. 126. n. 30. t. 20. f. 1—5. 1842, *Paléont. univ.* t. 54. f. 1—5., *Moll. Viv. et Fos.* i. 531. n. 34.

Middle Oxford Clay.

35. BELEMNITES ENIGMATICUS.

Very short, obtuse, smooth, posteriorly obtusely rounded; aperture somewhat square, above sinuated; alveolus with an angle of 20° .

Belemnites enigmaticus *D'Orb. Paléont. Franç. Terr. Jur.* i. 131. n. 32. t. 22. f. 1—3., *Paléont. univ.* t. 64. f. 1—3., *Moll. Viv. et Fos.* i. 534. n. 37.

Middle Oxford Clay.

36. BELEMNITES LATISULCATUS.

Elongate, slender, spindle-shaped, anteriorly alternately depressed, posteriorly depressed, acute, beneath longitudinally grooved; groove not interrupted; aperture depressed.

broadly grooved; groove excavated; aperture round
pressed; alveolus at an angle of 17° .

Belemnites canaliculatus Grant, *Trans. Geol. Soc.* 2d ser.
f. 2, 3. 1837 (not Schloth.).

Belemnites Grantianus D'Orb. *Paléont. univ.* t. 58. 1844
étrang. t. 32., *Moll. Viv. et Fos.* i. 523., *Belemn.* n. 27

Hab. India. Kellovian deposit?

38. BELEMNITES ALTDORFENSIS.

Shell rather elongate, conical, anteriorly and posteriorly
longitudinally grooved; groove anteriorly disappear
ture roundedly depressed; alveolus at an angle of 20°

Belemnites Helveticus Defrance collection; *Blainv. Belemn.*

Belemnites Altdorfensis Blainv. *Belemn.* 67. n. 9. t. 2.

Desh. Encyc. ii. 126. n. 7.; *Hartm. Wurt.* 15. ?; *K*

Nat. 424. n. 10.; *D'Orb. Paleont. univ.* t. 55. f. 7. 11.

3., *Paléont. étrang.* t. 33. f. 1—3., *Moll. Viv. et Fos.* i.

Belemnites absolutus Fischer, *Oryct. Genv. Moscow*, 1837

2. 1837; *D'Orb. Murch. and Vern. Russia*, ii. 421. n.

1—9.

Belemnites Beaumontianus D'Orb. *Paléont. Franç. Ter*

t. 16. f. 7—11.

Hab. Lower Oxford Clay.

Fossils in Coralline Grit.

D. BELEMNITES ROGERIANUS.

elongate, slender, spindle-shaped, depressed, posteriorly acute, anteriorly attenuated, beneath anteriorly grooved; groove appearing in the middle.

nites pistilliformis *Blainv. Belemn. t. 5. f. 17. 1827* (exclus. —16.).

nites Rogerianus *D'Orb. Paléont. Franç. Terr. Jur. 132. n. t. 22. f. 9. 15. 1842, Paléont. univ. t. 64. f. 9. 15., Moll. Viv. Fos. i. 535. n. 38.*

Upper Oxford Clay.

Fossils in Greensand.

1. BELEMNITES BIPARTITUS.

elongate, spindle-shaped, anteriorly narrowed, somewhat two-sided, posteriorly acuminate, acute, laterally compressed. longitudinally grooved; above rounded; beneath anteriorly grooved.

obelus bipartitus *Blainv. Belemn. Sup. 113. t. 5. f. 19. 1828.*

nites bicanaliculatus *Blainv. Belemn. Sup. 120. t. 5. f. 9. (clus. f. 8.) 1828; Raspail, Ann. Sc. Observ. 58.*

nites bisulcus *Raspail, l. c. iii. 88. t. 4. f. 20, 21. 1829.*

nites bipartitus *Catullo, Ann. des Sc. Nat. di Bologna, v. 1829; Desh. Encyc. Méth. 128. n. 11.; D'Orb. Paléont. Franç. Terr. Cret. i. 45. n. 2. t. 3. f. 6. 12., Paléont. univ. t. 69. f. 12., Moll. Viv. et Fos. i. 539. n. 43.; Duval, Belemn. 41. t. 1. 8.*

Greensand (Etage Néocomien).

2. BELEMNITES PISTILLIFORMIS.

elongate, rather spindle-shaped, anteriorly acuminate, posteriorly acutely pointed, laterally and longitudinally two-grooved, beneath grooved anteriorly; alveolus 20.

nites *Blainv. Observ. sur les Belemn. t. 3. f. 9. 1810.*

nites minimus *Blainv. Belemn. 119. t. 4. f. 1. t. 5. f. 6. (not nimitus Lister.)*

nites pistilliformis *Blainv. Belemn. 98. t. 5. f. 14, 15. (exclus. f. 16, 17.) 1827* (not Roemer, 1835; not Sow. 1829); *Raspail, Ann. Sc. Observ. i. 327. t. 8. f. 95. 97. 100. 102.; D'Orb. Paléont. Franç. Terr. Cret. i. 53. n. 6. t. 6. f. 1. 4., Paléont. univ. t. 34. f. 1. 4. t. 68. f. 9, 10. t. 70. Terr. Cret.*

- Supp. t. 5., Moll. Viv. et Fos. i. 540. n. 44.; Duval, B. t. 8. f. 10. 16.*
- Belemnites subfusiformis Raspail, Hist. Nat. Belemn. i. 93. 1829; D'Orb. Paléont. Franç. Terr. Cret. i. 53. n. 9. 16.; Duval, Belemn. 66. t. 9, 10.*
- Belemnites crassior Raspail, Ann. Sc. d'Observ. 57. t. 8.*
- Belemnites crassissimus Rasp. l. c. 327. t. 8. f. 85. 87. 11.*
- Belemnites aculeus echini Rasp. l. c. 327. t. 8. f. 87. 1829.*
- Belemnites hastatus Rasp. l. c. t. 8. f. 91. 1829.*
- Belemnites symmetricus Rasp. l. c. 54. t. 8. f. 90. 101. 1.*
- Belemnites præmorsus Rasp. l. c. 55. t. 8. f. 27. 1829.*
- Belemnites contortus Rasp. l. c. 56. t. 8. f. 28, 29. 1829.*
- Belemnites oblongus Rasp. l. c. 52. t. 8. f. 82. 1829.*
- Belemnites navicula Rasp. l. c. 51. t. 8. f. 79. 1829.*
- Belemnites brevirostris Rasp. l. c. 51. t. 8. f. 80. 1829.*
- Belemnites fusus Rasp. l. c. 52. t. 8. f. 81. 1829.*
- Belemnites gemmatus Rasp. l. c. 51. t. 8. f. 77. 1829.*
- Belemnites rostratus Rasp. l. c. 51. t. 8. f. 78. 1829.*
- Actinocamax fusiformis Voltz, Obs. sur les Belemn. 34. young, 1830.*
- Actinocamax Milleri Voltz, Obs. sur les Belemn. 35. adult, 1830.*
- Belemnites pistillum Roemer, Nord. Ool. 108. t. 16. Nord. Kreid. 83. n. 2.*
- Hab. Greensand (Etage Néocomien).*

43. BELEMNITES BICANALICULATUS.

Shell elongate, subcylindrical, anteriorly rather four-terially obtusely acuminate, laterally anteriorly long grooved, beneath anteriorly grooved.

Belemnites bicanaliculatus Blainv. Belemn. Supp. 120 (exclus. f. 9.) 1828; Keferst. Dict. Nat. 424. n. 16. Paléont. Franç. Terr. Cret. i. 47. n. 3. t. 3. f. 13. 16. univ. t. 69. f. 13. 16. t. 71. f. 5. 8., Terr. Cret. Supp. t. Moll. Viv. et Fos. i. 544. n. 47.

Hab. Greensand (Etage Néocomien).

44. BELEMNITES SEMICANALICULATUS.

Shell elongate, cylindrical, posteriorly acuminate, posteriorly compressed on the sides, beneath sulcate; grooving appearing in the middle of its length; aperture entire; an angle of 18.

Belemnites semicanaliculatus Blainville, Belemn. 67. 1827; Desh. Enc. Méth. ii. 126. n. 6.; D'Orb. Paléont.

err. Cret. i. 59. n. 9. t. 5. f. 10. 15., Paléont. univ. t. 76. f. 10. t. 74. f. 7. 9., Terr. Cret. Sup. t. 9. f. 7. 9., Moll. Viv. et Fos. 553. n. 54.; Duval, Belemn. 74. t. 6. f. 5. 12.

(Etage aptice.)

45. BELEMNITES MINARET.

elongate, rather acuminate, anteriorly rounded, beneath one-grooved, posteriorly depressed, sharply conical; alveolus at an angle of 18°.

anites rimosus Raspail, Ann. Sc. d'Obs. i. 319. t. 8. f. 68. 1829.

anites depressus Rasp. l. c. 319. t. 8. f. 69. 1829.

anites incurvatus Rasp. l. c. 319. t. 8. f. 71.

anites marginatus Rasp. l. c. 319. t. 8. f. 70. 73, 74.

anites attenuatus Rasp. l. c. 319. t. 8. f. 72.

anites gibbosus Rasp. l. c. 320. t. 8. f. 76.

anites asulus Rasp. l. c. 308. t. 6. f. 19. ?

anites rugosus Rasp. l. c. 322. t. 8. f. 89.

anites minaret Raspail, l. c. 323. t. 8. f. 94. 1829; D'Orb. Paléont. univ. t. 75. f. 1. 8., Terr. Cretac. Supp. t. 10. f. 1. 8., Moll. Viv. et Fos. i. 551. n. 52.

anites platyurus Duval, Belemn. 73. t. 11. f. 1. 3. 1841.

ab. Greensand (Etage Néocomien).

Fossils in Gault.

46. BELEMNITES MINIMUS.

elongate, club-shaped (young), posteriorly obtuse (adult), beak-terminated, acute, anteriorly narrowed, truncate, beneath one-grooved, laterally and longitudinally two-grooved.

anites minimus Lister, Hist. An. Aug. 228. f. 32. 1678;

Miller, Trans. Geol. Soc. t. 9. f. 6. 1823; Blainv. Belemn. 75. t. 1.

f. i. c. and Supp. 118. (part); Sow. Min. Conchol. t. 589. f. 1.

Keferst. Dict. Nat. 427. n. 63.; Bronn, Lethæa Geog. t. 33. 13. ?; Michelin, Mém. Soc. Géol. ii. 100.; D'Orb. Paléont.

franç. Terr. Cret. i. 57. n. 8. t. 5. f. 3. 9., Paléont. univ. t. 76. f. 9.,

Moll. Viv. et Fos. i. 554. n. 55. t. 37. f. 21. 23.; Geinitz, Jahrb. 68. t. 17. f. 32, 33, 34. ?; Roemer, Kreideg. 84. n. 3. ?;

Morris, Brit. Fos. 177.

anites Listeri Mantell, Geol. of Sussex, 88. t. 19. f. 17, 18. 23.

22.; Phillips, Geol. Yorksh. t. 1. f. 18.

anites attenuatus Sow. Min. Conch. t. 589. f. 2. 1828; Keferst.

Dict. Nat. 424. n. 15.; Morris, Brit. Fos. 177.

anites jaculum Phillips, Geol. Yorksh. t. 3. f. 1. ? 1829; Morris,

Brit. Fos. 177.

Gault. England, &c.

Fossil in Juronien.

47. BELEMNITES ULTIMUS.

Shell elongate, cylindrical, smooth, anteriorly roundedly compressed, beneath one-grooved; groove disappearing gradually posteriorly acuminately pointed; alveolus at an angle of 20.

Belemnites ultimus D'Orb. Paléont. univ. t. 75. f. 9—13. 11 Terr. Cret. Supp. t. 10. f. 9. 13., Moll. Viv. et Fqs. i. 556. n.

Hab. (Etage Juronien.)

3* *Dorsal Groove distinct.*—*Nostocæli D'Orb. Bronn, l. c. Gastrosiphites Duval, l. c.*

† *The Style compressed, often much enlarged, with a distinct dorsal Groove, and distinct lateral Grooves.*—*Fossil. Némién. Dilatati D'Orb. l. c. 481.; Bronn, 150.*

48. BELEMNITES DILATATUS.

Shell oblong, very much compressed, rather lanceolate, somewhat convex on the sides, longitudinally one-grooved, posteriorly obtuse, anteriorly grooved; alveolus at an angle of 20 . .

Belemnites dilatatus Blainv. Belemn. 29. t. 3. f. 13. b. d. t. 18. 1827; Catullo, Ann. di Hor. di Bologna, v. 310.; D'Enc. Méth. 132. n. 24.; Keferst. Dict. Nat. 425. n. 36.; D'Orb. Paléont. Franç. Terr. Cret. i. 39. n. 1. t. 2. f. 20, 21. t. 3. f. 5., Paléont. univ. t. 65. f. 7—15. t. 66. f. 20, 21. t. 69. f. 4. Terr. Cret. Supp. t. 3. f. 7—15., Moll. Viv. et Fos. i. 550. n. Duval, Belemn. 54. t. 4.; Matheson, Catal. 258. n. 283.

Belemnites linearis Raspail, Hist. Nat. Belemn. 36. n. 8. t. 6. f. 1.

Belemnites elegans Rasp. l. c. 36. n. 9. t. 6. f. 10.

Belemnites anomalus Rasp. l. c. 36. n. 10.

Belemnites variegatus Rasp. l. c. 41. n. 1. t. 7. f. 55.

Belemnites fumosus Rasp. l. c. 41. t. 7. f. 58.

Belemnites apiculatus Rasp. l. c. 42. t. 7. f. 56.

Belemnites sinuatus Rasp. l. c. 42. t. 7. f. 59.

Belemnites spathulus Rasp. l. c. 42. t. 7. f. 61.

Belemnites ellipsoïdes Rasp. l. c. 43. t. 7. f. 48.

Belemnites complanatus Rasp. l. c. 43. t. 7. f. 63, 64.

Belemnites Delphinus Rasp. l. c. 44. t. 7. f. 47.

Belemnites bifurcatus Rasp. l. c. 44. t. 7. f. 67.

Belemnites augustus Rasp. l. c. 44. t. 7. f. 66.

Belemnites amorphus Rasp. l. c. 44. t. 7. f. 49.

Belemnites triqueter Rasp. l. c. 44. t. 7. f. 46.

Belemnites pseudo-formosus Rasp. l. c. 45. t. 8. f. 83.

Belemnites emarginatus Rasp. l. c. 45. t. 7. f. 50, 51. 60.

nnites difformis *Rasp.* l. c. 45. t. 7. f. 54.

nnites mitra *Rasp.* l. c. 45. t. 7. f. 53.

nnites mitræformis *Rasp.* l. c. 46. t. 7. f. 52.

(Etage Néocomien.)

a, b, c, d. Fossil style. Castellane. From Mr. Crantz's Collection.

49. BELEMNITES EMERICI.

ell oblong, very much compressed, anteriorly dilated, compressed on the sides, swollen, dilated in the middle, depressed in the middle, posteriorly obliquely acuminate, above grooved; alveolus at an angle of 18°.

Belemnites Emerici *Raspail, Ann. Sc. d'Obs.* i. 302. n. 1. t. 6. f. 1.

1829; *D'Orb. Paléont. Franç. Terr. Cret.* i. 617., *Paléont. univ.*

66. f. 22, 23. t. 69. f. 1—3. t. 73. f. 1—7., *Terr. Cret. Supp.*

8. f. 1—7., *Moll. Viv. et Fos.* i. 548. n. 50.; *Duval, Belemn.*

3. t. 5. f. 1—7.

Belemnites pileus *Raspail*, l. c. 304. n. 2. t. 6. f. 2. 5. 1829.

Belemnites affinis *Raspail*, l. c. 304. n. 3. t. 6. f. 3, 4. 1829.

Belemnites dilatatus *D'Orb. Paléont. Franç. Terr. Cret.* t. 2. f. 22,

3. t. 3. f. 1—3. (pars) 1839.

(Etage Néocomien.)

50. BELEMNITES LATUS.

ell elongate, lanceolate, oblique, thick, compressed, posteriorly abruptly mucronate, beneath longitudinally broadly grooved; pex excentric; alveolus with an angle of 20°.

Belemnites latus *Blainv. Mém. sur les Belemn. Supp.* 121. t. 5. f.

10. (adult) 1828; *D'Orb. Paléont. Franç. Terr. Cret.* i. 48. n.

4. t. 4—8. (exclus. f. 1—5.), *Paléont. univ.* t. 67. f. 1—9. t. 68.

4—8., *Terr. Cret. Supp.* t. 4. f. 1—9., *Moll. Viv. et Fos.* i.

38., *Belemn.* n. 41.; *Duval, Belemn.* 61. t. 6. (exclus. f. 1.);

Matheson, Cat. 258. n. 284.

Belemnites obesus *Raspail, Ann. Sc. d'Obs.* i. 307. t. 6. f. 13. 1829.

Belemnites Honoratii *Raspail*, l. c. 316. t. 8. f. 88. 1829.

Belemnites convexus *Raspail*, l. c. 42. t. 7. f. 17. 1829.

Belemnites persona tonsoria *Raspail*, l. c. 46.

Hab. (Etage Néocomien.)

51. BELEMNITES BINERVIUS.

ell oblong, compressed, nearly equal, anteriorly narrow, above grooved, flattened at the sides, two-striated, posteriorly obtusely pointed; alveolus with angle at 21—30°.

Belemnites dilatatus D^r Orb. *Terr. Cretac.* 39. t. 2. f. 9—
Belemnites hybridus Duval, *Belemn.* 51. t. 3. 1841.

Hab. (Etage Néocomien.)

52. BELEMNITES ORBIGNYANUS.

Shell elongate, somewhat cylindrical, smooth, above compressed, beneath grooved; groove disappearing in middle, posteriorly depressly mucronate; alveolus with a 18°.

Belemnites Orbignyanus Duval, *Belemn.* 65. t. 8. f. 4
D'Orb. Paléont. univ. t. 67. f. 10—16., *Terr. Cret. St.*
10—16., *Moll. Viv. et Fos.* i. 539., *Belemn.* n. 42.

Hab. (Etage Néocomien.)

53. BELEMNITES CONICUS.

Shell short, conical, rather cylindrical, thick, anteriorly acuminated, acute, beneath longitudinal grooved; groove keeled on the sides.

Belemnites conicus Blainv. *Belemn.* 118. t. 5. f. 4. young
D'Orb. Paléont. univ. t. 68. f. 13. t. 71. f. 9—16., *Terr. Cret. St.*
Supp. t. 6. f. 9—16., *Moll. Viv. et Fos.* i. 545. n. 48.

Belemnites exstinctorius Raspail, *Ann. Sc. d'Obs.* i. 308.
(adult) 1829.

pp. t. 8. f. 8—13. t. 9. f. 1—6., *Moll. Viv. et Fos.* i. 552. n.

Greensand (Etage Néocomien).

55. BELEMNITES BAUDOUINII.

elongate, conical, smooth, anteriorly dilated, posteriorly acute, acute, beneath grooved.

Belemnites Baudouinii *D'Orb. Paléont. Franç. Terr. Cret.* i. 54. t. 5. f. 1, 2., *Paléont. univ.* t. 76. f. 1, 2., *Moll. Viv. et Fos.* 44., *Belemn.* n. 46.

Greensand (Etage Néocomien).

56. BELEMNITES POLYGONALIS.

elongate, lanceolate, compressed, anteriorly four-sided and edged, above one-grooved, posteriorly square, on the sides flat excavated, above and beneath posteriorly flattened or excavated; apex acuminate, pointed; alveolus at an angle of 20°.

Belemnites polygonalis *Blainv. Belemn. Supp.* 121. n. 156. t. 5. f. 1827; *Raspail, Ann. Sc. d'Obs.* i. 330. 1829; *D'Orb. Paléont.* v. t. 66. f. 1—8. t. 72., *Terr. Cret. Supp.* t. 7., *Moll. Viv. et Fos.* i. 546. n. 49.

Belemnites Tetragonolobi *Raspail*, l. c. iii. 87. t. 4. f. 1—7. 1830.

Belemnites Tetragoni *Raspail*, l. c. iii. 87. t. 4. f. 8. 13. 1830.

Belemnites Heteromorphi *Raspail*, l. c. iii. 88. t. 4. f. 14—19.

Belemnites dilatatus *D'Orb. Terr. Cret.* t. 2. f. 1—8. (exclus. f. 2-3).

Belemnites isosceles *Duval, Belemn.* 46. t. 1. f. 9—16. 1841.

Belemnites urnula *Duval*, l. c. 47. t. 2. f. 1—7. 1841.

Belemnites trabiformis *Duval*, l. c. 48. t. 2. f. 8—14. 1841.

Belemnites sicyoides *Duval*, l. c. 49. t. 2. f. 15—20. 1841.

Greensand (Etage Néocomien).

Doubtful Species.

57. BELEMNITES LAMELLA.

Belemnites lamella *Faure Biguet, Cons. sur les Belemn.* 39. n. 1. f. 4. 1819; *D'Orb. Paléont. univ.* t. 77. f. 12—17., *Paléont. univ.* t. 37. f. 12—17., *Moll. Viv. et Fos.* i. 557. n. 57.

Valdrome en Diois.

58. BELEMNITES VAGINA.

Belemnites vagina *Faure Biguet, Belemn.* 40. n. 2. 1819
Moll. Viv. et Fos. i. 557. n. 58.

Fos. Valdrome en Diois.

59. BELEMNITES CAPULUS.

Belemnites capulus *Faure Biguet, Belemn.* 41. n. 3. 1819
Moll. Viv. et Fos. i. 558. n. 59.

Fos. Valdrome en Diois.

60. BELEMNITES COLUTEA.

Belemnites colutea *Faure Biguet, Belemn.* 42. n. 4. 1819
Moll. Viv. et Fos. i. 558. n. 60.

Fos. Osson.

61. BELEMNITES CORONILLA.

Belemnites coronilla *Faure Biguet, Belemn.* 42. n. 5. 1819
Moll. Viv. et Fos. i. 558. n. 61.

Fos. Commane.

62. BELEMNITES SILIQUA.

Belemnites siliqua *Faure Biguet, Belemn.* 43. n. 6. 1819
Moll. Viv. et Fos. i. 559. n. 62.

Fos. Commane.

63. BELEMNITES LEGUMEN.

Belemnites legumen *Faure Biguet, Belemn.* 44. n. 7. 1819
Moll. Viv. et Fos. i. 559. n. 63.

Fos. Commane.

64. BELEMNITES CASSIA.

Belemnites cassia *Faure Biguet, Belemn.* 44. n. 8. 1819
Moll. Viv. et Fos. i. 559. n. 64.

Fos. — ?

65. BELEMNITES CATALPA.

Belemnites catalpa *Faure Biguet, Belemn.* 45. n. 9. f.
D'Orb. Paléont. univ. t. 77. f. 18., *Paléont. étrang.* t. 1.
Moll. Viv. et Fos. i. 560. n. 65.

Fos. Monte Cindre.

66. BELEMNITES ATTENUATUS.

Belemnites attenuatus Faure Biguet, Belemn. 47. n. 10. 1819 (not attenuatus Sow. 1828.); D'Orb. Moll. Viv. et Fos. i. 561. n. 66.
s. Drôme.

67. BELEMNITES CLAVA.

Belemnites clava Faure Biguet, Belemn. 48. n. 11. 1819; D'Orb. Moll. Viv. et Fos. i. 561. n. 67.
s. Commane.

68. BELEMNITES INDEX.

Belemnites index Faure Biguet, Belemn. 50. n. 12. 1819; D'Orb. Moll. Viv. et Fos. i. 562. n. 68.
s. Valdrome.

69. BELEMNITES DACTYLUS.

Belemnites dactylus Faure Biguet, Belemn. 51. n. 13. t. . f. 6. 1819; D'Orb. Paléont. univ. t. 77. f. 19., Paléont. étrang. t. 37. f. 19., Moll. Viv. et Fos. i. 563. n. 69.
s. Commane.

70. BELEMNITES DIGITUS.

Belemnites digitus Faure Biguet, Belemn. 51. n. 14. 1819; D'Orb. Paléont. univ. t. 77. f. 20—22., Paléont. étrang. t. 37. f. 20—22., Moll. Viv. et Fos. i. 563. n. 70.
s. Drôme.

71. BELEMNITES DIGITULUS.

Belemnites digitulus Faure Biguet, Belemn. 53. n. 15. 1819; D'Orb. Moll. Viv. et Fos. i. 564. n. 71.
s. Commane.

72. BELEMNITES STRIATUS.

Belemnites striatus Faure Biguet, Belemn. 53. n. 16. 1819; D'Orb. Moll. Viv. et Fos. i. 564. n. 72.
s. Commane.

73. BELEMNITES DENS.

Belemnites dens Faure Biguet, Belemn. 55. n. 17. 1819; D'Orb. Moll. Viv. et Fos. i. 564. n. 73.
s. Couzon.

PACTITES BIFORATUS *Montf. Conch. Syst.* 318. gen. 80. 1808.
Belemnites biforatus *Schloth. Min. Tasch.* viii. 76. 1813; *Moll. Viv. et Fos.* i. 568.

Established by Montfort from a bad figure of Knorr's.

89. **BELEMNITES UNGULATUS.**

Knorr, Monum. iii. iv. sup. 146. t. 4. f. 8, 9.
Belemnites unguatus *Schloth. Petref.* 50. n. 9. 1820; *D'Orb. Viv. et Fos.* i. 568.

Thalamus polymitus *Montf. Conch. Syst.* 323. 1808.

Established by Schlotheim from a bad figure of Knorr's.

90. **BELEMNITES ALVEOLATUS.**

Callirhoe alveolatus *Montf. Conch. Syst.* 363. 1808.

Belemnites alveolatus *D'Orb. Moll. et Viv.* i. 569.

Established by Montfort upon an alveolus of a Belemnite.

91. **BELEMNITES GLABER.**

Knorr, Monum. ii. sect. 2. 241. t. 1*. f. 4.

Cetocis glaber *Montf. Conch. Syst.* 371. 1808.

Belemnites cretaceus glaber *Schloth. Min. Tasch.* vii. 69. t. 1813.

Belemnites penicellatus *Schloth. Petref.* 50. n. 10. 1820.

Belemnites glaber *D'Orb. Moll. Viv. et Fos.* i. 569. 1845.

Established upon a rolled fragment; indeterminate.

92. **BELEMNITES POLYFORATUS.**

Knorr, Monuments, ii. sect. 2. 241. t. 1*. f. 1—3.

Acamas polyforatus *Montf. Conch. Syst.* 374. 1808.

Belemnites polyforatus *Schloth. Min. Tasch.* vii. 69. 1813, *P.* 50. n. 11.; *Blainv. Belemn.* 103. n. 45.; *D'Orb. Moll. et Fos.* i. 569.

Belemnites unguatus *Blainv. Belemn.* 78. n. 18. 1827 (not *Sch.* 1813).

Established upon a bad figure of Knorr's.

93. **BELEMNITES PYRGOPOLON MOSÆ.**

Pyrgopolon Mosæ *Montf. Conch. Syst.* 394. gen. 99. 1808.

Belemnites pyrgopolon Mosæ *Schloth. Min. Tasch.* vii. 110. 1813; *D'Orb. Moll. Viv. et Fos.* i. 569.

Belemnites canaliculatus *Schloth. Petref.* 49. n. 7. 1820.

Established by Montfort upon a fragment of a rolled Belemnite.

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6. *Belemnites* *...*
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7. *Belemnites* *...*
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A

ISTEES

APPENDIX.

Beak of Cephalopoda.

1. CONCHORHYNCHUS.

Animal unknown.— *Beak* Mandibles triangular, broad upper? angular in front and three externally, and marked with radiating ribs, three and three lateral; the inner part concave; dental edge with irregular prominences and depressions; the lower? with radiating ribs, with a hood in front; the anterior end blunt, and the dental part with strong facets.

Glossopetres sp. and *Histerolites* sp. *Knorr*.

Rhyncholites *Munster, Beitr.* 1829.

Conchorhynchus *Blainville, Belemn.* 115. 1827; *D'Orb. Moll. V. et Fos.* i. 587.

Lepadites *Schlotheim, Petref.* 1820.

Sepia rostrum *Blumenbach, Arch.* i. 21.; *Brongn. Ann. Sic. Nat.* 485.; *Gaillardot, Ann. Sic. Nat.* ii. 1824. 485.

Fos. Muschelkalk.

1. CONCHORHYNCHUS AVIROSTRES.

Beak triangular.

Knorr, ii. t. 11. i. a. f. 9, 10. 1768.

Gmelin, N. G. Mineral, iii. t. 6. f. 79, 80.

Schroet. Lgt. Lexic. viii. 207.

Sepia rostrum *Blumenbach, Arch.* i. 21. t. 2. f. 5. a. (b. c.?)

Bec de Sèche *Gaill. Ann. Sci. Nat.* 1824. ii. t. 22. f. 12.

Lepadites avirostres *Schlotheim, Petref.* 169. t. 29. f. 10. 1820.

Conchorhynchus ornatus *Blainv. Belemn.* 115. t. 4. f. 12. 1827.

Rhyncholites Gaillardoti *Zieten, Wurtz.* 49. t. 37. f. 2. 1830
Hartm. Wurtz. 31. t. 37. f. 2. 1830; *D'Orb. Ann. Sci. Nat.* 219.

Sepia Gaillardoti *Keferst. Dict. Nat.* 53. 1834.

horhynchus avirostris *Bronn, Lethæa, Géog.* 1827; *Munster, Beitr.* 1839, i. 69. t. 5. f. 2, 3.; *D'Orb. Paléont. univ.* t. 78. f. 1. *Moll. Viv. et Fos.* 590. t. 38. f. 1. 6.

a. Muschelkalk, upper layer. Bayreuth. Presented by J. E. Gray, Esq.

2. CONCHORHYNCHUS DUPLICATUS.

colitus duplicatus *Munster, Beitr.* i. 70. t. 5. f. 5. 1829.
 horhynchus duplicatus *D'Orb. Paléont. univ.* t. 73. f. 7. 10.,
Moll. Viv. et Fos. t. 38. f. 7—10. from Munster.

Muschelkalk, Bavaria.

3. CONCHORHYNCHUS CASSIANUS.

horhynchus Cassianus *Meyer-Klepstein, Beitr. z. Geog.* 145.
 9. f. 7. 1843; *D'Orb. Paléont. univ.* t. 78. f. 7—10., *Moll. Viv.*
Fos. i. 591. t. 38. f. 11, 12. from Klepstein.
 assianicus *Bronn, Gesch. d. Nat.* iii. 323.

s. Muschelkalk, saliferous bed, Austrian Alps.

2. RHYNCHOLITES.

al unknown.—*Beak* testaceous, depressed, triangular or
 ngate, broader than thick; above angular, smooth, convex;
 angular, acuminate in front, broad behind, and ending in
 o winglike expansions.

colithes sp. *Faure Biguet*, 1819; *Rousseau, Voy. Demid.*;
Orb. Tab. Céphal. 72., *Ann. Sci. Nat.* v. 9. t. 6. f. 2. 1825.
 choteuthis *D'Orb. Moll. Viv. et Fos.* i. 593. 1847.

s. Of the Jurassic period.

* Kelloway Rock.

1. RHYNCHOLITES HONORATIANUS.

choteuthis honoratianus *D'Orb. Paléont. univ.* t. 79. f. 1. 4.
 47., *Moll. Viv. et Fos.* i. 594. t. 39. f. 1. 4., *Ter. Juras. Supp.*
 1. f. 1—4.

Dignes, Lower Alps.

2. RHYNCHOLITES ANTIQUATUS.

cholites antiquatus *Rousseau, Voy. Demid.* t. 1. f. 1.
 choteuthis antiquatus *D'Orb. Moll. Viv. et Fos.* i. 595. t. 39.
 5. 8.

Crimea.

** *Oxford Clay.*

3. RHYNCHOLITES EMERICI.

Anterior part smooth, keeled above, much pointed in front.

Rhyncholites Emerici *D'Orb. Tab. Céphal.* 72. 1825.

Rhyncholite aigu *Blainv. Belemn. t.* 5. f. 22. 1827.

Rhynchoteuthis Emerici *D'Orb. Paléont. univ. t.* 79.

Moll. Viv. et Fos. i. 595. t. 39. f. 9. 12.

Fos. Dignes.

4. RHYNCHOLITES LARUS.

Blunt in front, with a prominence beneath.

Rhyncholites Larus *Faure Biguet*, 58. t. 1. f. 2. t. 6. 1

D'Orb. Ann. Sci. Nat. 1825. v. 8. t. 6. f. 2.

Rhynchoteuthis Larus *D'Orb. Paléont. univ. i. t.* 79. f. 13

Moll. Viv. et Fos. i. 396. t. 39. f. 13. 16.

Fos. Rians.

5. RHYNCHOLITES COQUANDIANUS.

Front part smooth, pointed; hinder part concave, with groove; wing short.

Rhynchoteuthis Coquandianus *D'Orb. Paléont. univ. i.*

20., *Moll. Viv. et Fos. i.* 597. t. 39. f. 17. 20.

R. Larus, lower mandibles, *D'Orb. l. c.*

Fos. Rians.

3 * *Néocomien.*

6. RHYNCHOLITES ALATUS.

Beak of *Belemnites Emerici* ?

Rhynchoteuthis alatus *D'Orb. Paléont. univ. i. t.* 80. f. 1

Moll. Viv. et Fos. i. 598.

Fos. Cheiron.

4 * *Aptien.*

7. RHYNCHOLITES ASTERIANUS.

Rhynchoteuthis asterianus *D'Orb. Paléont. univ. i. t.* 8

1847, *Moll. Viv. et Fos. i.* 598.

Fos. Blieux.

5 * *Senoiën.*

8. RHYNCHOLITES DUTEMPLEI.

like *R. Emerici*, but shorter.

Rhynchoteuthis Dutemplei D'Orb. Moll. Viv. et Fos. i. 599.

Fos. Chevot.

Doubtful Species.

9. RHYNCHOLITES TUBERCULATUS.

Rhyncholites tuberculatus Faure Biguet, 59. 1809.

Rhynchoteuthis tuberculatus D'Orb. Moll. Viv. et Fos. i. 600

Fos. Valdrome.

10. RHYNCHOLITES UNIDENTATUS.

Rhyncholites unidentatus Faure Biguet, 58. 1819.

Rhynchoteuthis unidentatus D'Orb. Paléont. univ. 1847, Moll. Viv. et Fos. 599.

Fos. Valdrome.

11. RHYNCHOLITES HASTA.

Rhyncholites hasta Faure Biguet, 59. 1819.

Rhynchoteuthis hasta D'Orb. Moll. Viv. et Fos. 599.

Fos. Luc.

Additions and Corrections.

Mr. Frederick Edwards having re-examined the *Beloptera paula* (p. 118.) of Mr. James Sowerby, and formed a genus for the character is here given, and they should be added at p. 118.

4. BELEMNOPSIS.

Bellemnopsis ———? — *Shell* internal, oblong, semi-conical; apex flexed towards the ventral aspect, and elongated into an umbo; the anterior part with a deep semi-conical cavity, ending in a siphon at the ventral side of the umbo internally; cavity lined with two concentric calcareous layers, continued over the ventral surface, and enveloping a series of transverse septa, perforated by a ventral siphon.

Belemnopsis *F. Edwards, Cephalopes of London Clay*, 38. i
Beloptera sp. *Sow. Min. Conch.*

This genus is, perhaps, the type of a new family.

1. BELEMNOPSIS ANOMALA.

Beloptera anomala, p. 118.

Belemnopsis plicata *F. Edwards, Ceph. London Clay*, 40. t.
ined.

Fos. London Clay. Cabinet of F. Edwards, Esq.

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 vulgaris, Sepiol. 93. 94.
 vulgaris, Spir. 116.

Z.

Zygæna, Loligop. 40.

THE END.

LONDON:

SPOTTISWOODES and SHAW,
 New-street-Square.

CATALOGUE
OF THE
M O L L U S C A
IN
THE COLLECTION
OF THE
BRITISH MUSEUM.

PART II.
P T E R O P O D A.

PRINTED BY ORDER OF THE TRUSTEES.
LONDON, 1850.

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P R E F A C E.

objects in forming the present Synoptical Catalogue, to exhibit at one view a complete list of all specimens of **MOLLUSCA** in the British Museum collections, to furnish such an account of the species known in other collections, but which are at this time in the British Museum, as the materials at hand permit me to compile, in order to enable travellers, and others, to assist in completing the national

purpose, short descriptions have been given of all the species of recent Mollusca now known to exist in different museums and private collections, and of the fossil species of the various families.

At the end of each description is added an enumeration, in alphabetical order, of the state, age, country, or strata, and other peculiarities of each specimen of the kind in the Museum. When the species is not at present in that collection, the museum in which it has been observed is indicated after the general habitat or locality of the species. The number of different individuals of each species contained in the British Museum collection are indicated by the letters

at the end of the names of specimens which have been presented to the Museum. The name of the donor marked immediately after the

habitat. When there is no such indication, the specimens have been either purchased or procured in exchange; and in this case, whenever the place or person from whom they have been received gives authenticity to the specimen, or adds anything to their history, they are noted as being from such and such a collection or locality. Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted. Reference has also been made to the works in which the genera and species appear to have been first described and noticed.

Catalogues like the present can be little more than compilations, and I have freely availed myself of the labours of my predecessors in the same field; especially of those who have published monographs of the different groups: but the characters of the orders, families, minor groups, and species have been compared and revised with the specimens.

J. E. GRAY.

11th January, 1850.

CATALOGUE

OF

P T E R O P O D A .

CLASS IV. PTEROPODA.

Head more or less distinct. Eyes none. Mouth often furnished with cup-shaped appendages.

Antennae 2 on the sides of the mouth, or 2 or rarely 4 on the side of the body between the head and abdomen: often furnished with a small intermedial lobe between them, apparently the rudiment of the foot of Gasteropodes.

Gills ovate or roundish, often enclosed in a thin, conical, cylindrical or subglobular shell, with a transverse contracted mouth.

Sexes individual unisexual?

Animals free, floating on the surface of the sea by the assistance of their fins. Nocturnal or crepuscular.

Pluteus, *Browne, Jam.* 386, 1756; *Linn. S. N.* ed. 12, i. 1094, 1767.

Pluteus Brachiata, part, *Poli. Test. Sicil.* i. 27.

Pluteus nuda nageant, part, *Latr. Dict. Hist. Nat.* xxiv. 108, 1804.

Pluteus pinnata, *Esch. Zool. Atlas*, iii. 1829; *Menke, Zeitschr. Mal.* 72, 1844.

Pluteid branches (ou Pterodibranches), *Blainv. Bull. Soc. Philom.* 814, 177; *Organ. Anim.* i. t. 8, 1822.

Pluteidibranchiata, *Blainv. Bull. Soc. Philom.* 1816, 28, 122.

Pluteid branches, part, *Blainv. Bull. Soc. Philom.* 1814, 179.

Pteropoda (Pteropodes), *Cuvier, Ann. du Mus.* iv. 223, 1804; *Bronn, Gesch. d. Natur.* iii. 353, 1847; *D'Orb. Voy. Amer. Merid.* 65; *Lang, Man. Moll.* 112, 1829; *Gray, Proc. Zool. Soc.* 1847, 203.

Forskal (*Faun. Arab.* 124) and Lamarck (*Hist. ed.* 2, compared the upper and lower part of the shell of a *Hyale* valves of the Brachiopodes, which they regard as united but this is a mere analogical resemblance in the single and not a true resemblance resulting from any affinity, as by the form of the valves of the other genera of the order shell of the Pteropoda, is a single valves, analogous to the valves of the Gasteropodes, and to one (and not both) of the Brachiopodes.

Loven compares the fins on the side of the head to the side of the head of the fetal or first-hatched shell of Gastropodes which are sometimes retained in the form of a fringe on the side of the body in the adult animal, as *Turbo*, *Trochus*, &c.

M. D'Orbigny gives the following as the result of his observations on the geographical distribution and habits of these Pteropoda. Of the 29 species which he has observed, 14 are equally common to all the seas, at least to the Atlantic and Pacific Ocean; 10 only been observed in the Atlantic, and 4 in the Pacific: 29 species are entirely nocturnal and 11 crepuscular. (*Voy. Merid. Moll.* 72).

The following genera or species have been erroneously referred to this class:—

1. CALLIANARIA (diploptera), *Peron & Lesueur, Ann. Mus. Hist. Nat. Paris*, 2, f. 16, "is probably a *Beroe*," *Blainv.*
2. *CYPRIDIPEDA* *Sars, Resk.* 77, 1835; *Leis.* 1837, 767.

LYALEA Planci, *Lesueur, Ann. Mus.* xv. (*Planchus Min. Conch.* t. 2, f. 6, g, h, i), is also a *Biloculina*.

DENTALIUM trachea, *Montague*, which has been formed into a genus by various authors, under different names,—as *Cœcum* (*Fleming*), *Brochus* (*Browne*), *Odontidium* (*Philippi*), *Cœcalium* (*Macgillivray*), *Odontostoma* (*Cantraine*), *Dentalopsis* (*Clarke*), *Odontina* (*Zhorzewsky*),—has been doubtfully referred to this order by M. Philippi (*Moll. Sicil.* 102). It has lately been proved by Mr. Clarke (*Ann. and Mag. Nat. Hist.* 1849) to be an operculated Gasteropode which will form a new family, which may be called *Cœcidæ*, among the division of the *Ctenobranchiata*.

MUDULUS, *Philippi*, probably belongs to the same group.

DENTALIUM Gadus, *Montague*, quoted as the genus *Gadus* by *Rang & D'Orbigny* (*Voy. Amer. Merid. Moll.* 75), and referred to the genus *Creseis* by *Rang*, appears to be a true *Dentalium*.

Synopsis of the Orders and Families.

ORDER I. THECOSOMATA. *Body inclosed in a shell. Head not distinct. Wings 2, on the side of the mouth. Gills internal.*

Sub-order I. *Animal and shell straight. Operculum none.*

1. 1. CAVOLINIDÆ. Shell calcareous, globular and conical. Animal without any foot-like appendage between the fins.

1. 2. TRIPTERIDÆ. Shell calcareous, subcylindrical or conical. Animal with a foot-like appendage between the fins.

1. 3. CYMBULIADÆ. Shell cartilaginous.

Sub-order II. *Animal and shell spiral. Operculum spiral.*

1. 4. LIMACINADÆ. Animal spiral. Shell spiral, sinistral.

ORDER II. GYMNOSOMATA. *Body naked. Head distinct. Wings 2 or 4, on the side of the neck, with an intermediate foot-like appendage. Gills external.*

1. 5. CLIONEIDÆ. Head with 6 conical tentacles. Fins 2.

1. 6. PNEUMODERMIDÆ. Head with 2 disk-bearing arms. Fins 2.

1. 7. CYMODOCIDÆ. Head simple. Fins 4.

ORDER I. THECOSOMATA.

Body inclosed in a shell.

Head indistinct, with two wings on the sides of the mouth.

Gills internal. *Tooth* of lingual membrane hooked, with a straight hooked tooth on each side.—*Loven*, t. 3, f. 5, 6.

Thecosoma, *Blainv. Dict. Sci. Nat.* xxxii. 271 (1824); *Malac.* (1825).

Thecosomata, "*Blainv.*" *Rang. Man.* 112; *Gray, Syn. B. M.* 186, 92; *Proc. Zool. Soc.* 1848, 203.

Cryptocephala, *Latr. Fam. Nat.* 169, 1825.

Pterobranchia and Dactyliobranchia, *Gray, Lond. Med. Rep.* 1823, 235.

Fam. Hyalea, *Ferussac.*

Hyales, *Rang, Man. Moll.* 112 (1829).

Hyalæacea, *Menke, Syn.* 1830.

Hyalinées, *D'Orb. Voy. Amer. Merid.* 77.

Hyalidées, Hyalidæ, *D'Orb. Moll. Cuba*, 70, 71, 1841.

Sub-order I. *Body and shell straight or globular. Operculum*

FAM I. CAVOLINIDÆ.

Animal with two united fins, without any posterior foot-like appendage between them. Abdomen voluminous. Gills in pair, internal superior organs of generation on right side.

Shell calcareous, symmetrical, elongate or globular.

Dactyliobranchia, *Gray, Lond. Med. Repos.* 1821.

Cleodoridæ, *Gray, Syn. Brit. Mus.* 184; *Proc. Zool. Soc.* 1848, 203; *Fig. Mol. Anim.* i. t. 77, 78.

Hyalæ (Les Hyales), *Ferus. Tabl.* 25, 1821; *Rang, Man.* 1829; *Desh. Ency. Meth.* iii. 310.

Hyalæaceæ (Hyaleaceæ), *Menke, Syn.* 4, 1828.

Hyalæacea, *Menke, Syn. ed.* 2, 6, 1830.

Hyaleacea, *Herrmannsen, Gen.* i. 543, 1846.

Hyalidæ (or Hyaleidæ), *Cantraine, Malac. Medit.* 22, 1841.

Acephalacis inequivalvibus bivalvibus, *Lamk. Syst.* 139.

Hyalidæ, *D'Orb. Moll. Canar.* 1837; *Moll. Cuba*, i. 70, 1841.

Acephales, part, *Latr. Dict. Hist. Nat.* xxiv. 119, 1804; *Bull. Soc. Phil.* 1814, 179.

Synopsis of the Genera.

- CAVOLINA. Shell subglobular. Mouth contracted, with a separate lateral slit on each side.
- DIACRIA. Shell globular. Mouth contracted, with a contiguous slit on each side.
- GLIO. Shell elongate, angular, conical. Mouth expanded, without any lateral slit.
- BALANTIUM. Shell triangular, depressed, transverse, waved. Mouth oblong, narrow, oblique, without any side slit.
- MAGINELLA. Shell oblong, ventricose, smooth; apex conical. Mouth contracted, narrow, transverse, without any side slit.
- TYLIOLA. Shell conical, subcylindrical, tapering. Mouth expanded, without any lateral slits.

A. *Shell with lateral slit, emitting the mantle.*

1. CAVOLINA.

very short, sometimes furnished with lateral appendages.—Shell globular; mouth narrower than the internal cavity, with a lateral slit on each side, interrupted in front.

Volina (tridentata), *Gioëni, Desc.* 4to, Naples, 1783; *Abild. Skrivt. Naturg. Selsk.* i. 171, 1791, not *Brug.* 1792; *Schum, Essai*, 9.

Volina (tridentata), *Retzius, Nov. Gen.* 1788.

Volina, *Humph. Mus. Cat.* 1797.

Volina, *Lamk. Prod.* 1799; *Syst. A. S. V.* 139, 1801; *Hist.* vi.

44, ed. 2, vii. 413; *Cuvier, Anat. Comp.* 1800; *Ann. du Mus.* iv.

23, 1804; *D'Orb. Mol. Cuba.*

Volina (tridentata), *Montf. Conch. Syst.* ii. 47, 1810.

Volina globulosæ, *Rang, Man.* 114, 1829.

Volina, *Froriep & Meckel.*

Volina, *Schweigger, Naturgesch.* 749, 1820; *Deshayes; Van Beneden,*

ouv. Mem. Acad. Brux. xii. 1839; *Cantraine, Malac. Medit.* 23,

41; *D'Orb. Moll. Cuba*, 1, 71.

Volina sp., *Forsh. Faun. Arab.* 1776.

Volina sp., *Brug.; Megerle*, 1811.

Volina chonta, *Montf. C. S.* ii. 50, 1810.

Volina andiolus, *Montf. C. S.* i. 314, 1808.

Volina oculus sp., *Lesson.*

Volina, *Poli, Test. Sicil.*

Anomia tridentata, *Gmelin, S. N.* 3348, No. 42; *Forsk.* t. 40, f. 6; *Chem. Conch.* viii. 65, vignette 13, f. g.; *C.* iii. t. 44, f. 1, 2.

Cavolina natans, *Abildgaard, Soc. Hist. Nat. Copenh.* i. 10; *Cuvier, Ann. du Mus.* iv. 224, t. 59.

Caulina natans, *Poli, Test. Sicil.* iii. 39, t. 44, f. 1, 2.

Hyalæa papilionacea, *Bory de St. Vincent, Voy.* i. 137
Blainville, Dict. des Sc. Nat. xxii. 86, f. 2.

Hyalæa cornea, *Roissi, Buff. de Sonnini*, v. 73; *Lamk.*

Hyalæa tridentata, *Bosc. Coq.* ii. 241, t. 9, f. 4; *Lan*
D'Orb. 1839; *Hist. Nat. Isles Canar. Moll.* 27; *Ran*
Hist. Isle Cuba, Moll. 72; *Philippi, Sicil.* 101, ii. 70.

Hyalæa Chemnitziana, *Peron et Lesueur, Ann. du Mus.*

Hyalæa Forskalii, *Lesueur, D'Orb. Voy. Amer. Merid. M*
f. 1—5.

Hyale tridentée, *Voy. Bonite Moll.* t. 4, f. 1, 7, t. 9, *ana*

Hyalæa truncata, *Krauss, Sudafr. Moll.* 34, t. 2, f. 12.

a—e. Shell. Gulf of Guinea. Presented by J. C.

f—i. Shell. Borneo. Presented by the Admiralt

j. Shell.

k—m. Shell. India.

n. Shell. Naples.

o—q. Animal and shell, in spirits. Borneo. P
Capt. Sir Edward Belcher, R.N., C.B.

r, s. Animal and shell, in spirits. Tropical Seas.
by Lieut. A. Smith, R.N.

4. CAVOLINA AFFINIS

globular, inflated, horny, posteriorly three-spined; middle one longer and narrower than the others, slightly inflexed; aperture transverse, narrow; inferior lip very long, narrow, sinuated superiorly.

æa affinis, *D'Orb. Voy. Am. Mer. Moll.* 91, t. 5, f. 6—10; *Sh. in Lamk. Hist. ed. 2*, vii. 418.

idæa Peronii, *Lesueur, Bull. Soc. Phil.* 1813.

5. CAVOLINA GIBBOSA.

globular, inflated, very gibbous anteriorly, three-spined posteriorly; lateral spines short, middle acuminate, strongly recurved; aperture narrow, deeply covered with the lip.

æa gibbosa, *Rang, Monogr. ined.*; *D'Orb. Voy. Am. Merid. Moll.* 95, t. 5, f. 16—20 (1836); *Moll. de Canaries*, 28; *Ram. Sagra, Hist. Cuba Moll.* 74; *Philippi, Sicil.* ii. 71; *Cantraine, Moll.* 27, t. 1, f. 5; *Lamk. Hist. ed. 2*, vii. 419.

æa bossue, *Voy. Bonite Moll.* t. 4, f. 13, 19.

—c. Animal and shell, in spirits. Presented by Lieut. A. Smith, R.N.

6. CAVOLINA UNCINATA.

globular, of a transparent horny colour, posteriorly three-spined; median spine longest, strongly curved, hooked; aperture row; lips shorter than in the other species.

æa uncinata, *Rang, pl. ined.*; *D'Orb. Voy. Am. Merid. Moll.* t. 5, f. 11—15 (1836); *Ramon, Sagra, Hist. Cuba Moll.* 73, t. 1, f. 1—4; *Desh. in Lamk. Hist. ed. 2*, 418.

æa à crochet, *Voy. Bonite Moll.* t. 4, f. 8, 12.

—e. Shell. Coast of Brazil. Presented by Dr. Sinclair, R.N. Shell.

—r. Shell. Red Sea.

—z. Animal and shell, in spirits. Tropics. Presented by Lieut. A. Smith, R.N.

8. CAVOLINA GLOBULOSA.

Hyale globuleuse, *Rang. Voy. Bonite Moll.* t. 4, f. 2 described.

Hab.

9. CAVOLINA ANGULOSA.

Hyale angulée, *Eydoux & Souleyet, Voy. Bonite Moll.* not described.

Hab.

10. CAVOLINA QUADRIDENTATA.

Shell somewhat globular, inflated, posteriorly obtuse, teeth on the margin; marked on the back with five gibbous on upper part, smooth; aperture narrow, very laterally; apex sometimes truncated.

Hyalæa quadridentata, *Lesueur, D'Orb. Voy. Amer. M.* 98, t. 6, f. 1—5; *Blainv. Dict. des Sc. Nat.* xxii. 1
Rang. Monogr. ined.; *D'Orb. Moll. des Canar.* 25; *R.*
Hist. Cuba Moll. 75; *Desh. in Lamk. Hist. ed. 2*, vii.

Hyale à quatre dents, *Voy. Bonite Moll.* t. 4, f. 25, 32.

H. quadrispinosa, *D'Orb. Amer. Merid. Moll.* 85.

Hab.

11. CAVOLINA LONGIROSTRA.

Shell ovate, globular, terminated anteriorly with a ra

12. CAVOLINA LIMBATA.

Shell rounded, globular, flat beneath, truncated posteriorly, laterally provided with triangular wing-shaped appendages; aperture transverse, narrow; labrum terminated by a rather long channelled beak.

læa limbata, *D'Orb. Voy. Am. Mer. Moll.* 101, t. 6, f. 11—15; *am. Sagra Hist. Cuba Moll.* 77, t. 2, f. 5—8; *Desh. in Lamk.*

Hist. ed. 2, vii. 417.

læa longirostris, *Quoy et Gaim. Voy. Ast.* ii. 380, t. 26, f. 20—21; *Desh. in Lamk. Hist. ed. 2*, vii. 416.

** *Shell oblong, elongated; central process elongate, conical.*

13. CAVOLINA LABIATA.

Shell elongated, of a somewhat trapezoidal form, inflated, terminated posteriorly by a very long point; aperture transverse, with very long lip-shaped margins.

læa labiata, *D'Orb. Voy. Am. Mer. Moll.* 104, t. 6, f. 21—25; *Coll. des Canar.* 29; *Ram. Sagra Hist. Cuba Moll.* 78, t. 9, f. 1—3; *Desh. in Lamk. ed. 2*, vii. 421.

læa labiée, *Voy. Bonite Moll.* t. 5, f. 27, 32.

14. CAVOLINA INFLEXA.

Shell elongated, conical, compressed on each side, elongated posteriorly, terminated by a recurved point, laterally armed with a short point; aperture ovately transverse, laterally deeply cleft.

læa inflexa, *Lesueur, Bull. Soc. Philom.* xiii. No. 69, t. 5, f. 4, b, c, d; *Blainv. Dict. Sc. Nat.* xxii. 80; *D'Orb. Voy. Am. Mer. Moll.* 103, t. 6, f. 16—20; *Ram. Sagra Hist. Cuba Moll.* 78; *Desh. in Lamk. Hist. ed. 2*, vii. 422.

læa inflechie, *Voy. Bonite Moll.* t. 5, f. 21, 26.

læa vaginella, *Cantraine, Bull. Brux.* ii. 380; *Philippi, Sicil.* 71.

læa uncinata, *Hæninghaus. MSS.*; *Philippi, Sicil.* i. 101, t. 1, f. 18, not Rang.?

2. DIACRIA.

Body short, sometimes with lateral appendages.—*Shell* globose, mouth narrower than the cavity, with a slit on each side, interrupted in front; apex often truncated in the adult.

Diacria (*trispinosa*), *Gray, Syn. Brit. Mus.* 1840, 1842; *Zool. Soc.* 1847, 203; *Agass. Nom.*; *Herrm. Ind. Gen.* i. 383.

Hyalea b. elongata, *Rang. Man.* 114, 1829.

Hyalæa **, *D'Orb. Voy. Amer. Merid.* 77; *Cuba*, 80.

1. DIACRIA TRISPINOSA.

Shell elongated, straight, dilated anteriorly, compressed on each side, terminated posteriorly with a very long spine, armed anteriorly with two short spines.

Hyalæa trispinosa, *Lesueur, Blainv. Dict. Sci. Nat.* xxii. 82; *Voy. Am. Mer. Moll.* 106, t. 7, f. 1—5, and t. 20, f. 1, 2; *des Canar.* 29, No. 14; *Ram. Sagra Hist. Cuba M. Chemn. Conch.* i. 65, vign. 13, f. a—d (1785); *Rang, ined.* t. 3; *Guerin, Icon. Reg. Anim. Moll.* t. 4; *Blainv. Sc. Nat.* xxii. 82; *Lamk. Hist. ed. 2*, vii, 421, No. 15; *L. M.* iii. 310; *Philippi, Sicil.* ii. 71; *Loven, K. Vet. Akad.* 3, f. 4; *Forbes & Hanley, Brit. Moll.* ii. 380, t. U, f. 3.

H. depressa, *Bivon, Efem. Sicil.* t. 1, f. 4, 5; *Philippi, Sicil.* 101, t. 6, f. 19.

H. triacantha, *Guidotti, Bronn, Ital.* 85.

Hyale à trois pointes, *Voy. Bonite Moll.* t. 6, f. 1, 10.

a—g. *Shell.* Coast of Brazil. Presented by Dr. Sinclair.

2. DIACRIA ORBIGNII.

Shell ovate, globular, smooth on the upper part and convex on the lower, flattened inferiorly, radiately grooved, terminated anteriorly by an inflexed semicircular lip; deeply cleft at the sides; posterior extremity scarcely prominent.

Hyalea Orbignii, *Rang, Ann. Sci. Nat.* xvi. 496, t. 19, f. 3; *in Lamk. Hist. ed. 2*, vii. 417.

Hab. Fossil, St. Paul, near Dax.

3. DIACRIA MUCRONATA.

reddish coloured, pellucid, thin, triangular, transversely striated, undulated lengthwise, rounded anteriorly; terminal spine up, longer than the lateral ones.

æa mucronata, Quoy & Gaim. *Ann. Sc. Nat.* x. 231, t. 8, f. 1, *D'Orb. Voy. Am. Mer. Moll.* 108, t. 7, f. 6—10.

æa trispinosa, Quoy & Gaim. *Zool. Astr.* t. 27, f. 17—19, ii. 8 (from *Ann. Sci. Nat.*)

trispinosa, part, *Desh. in Lamk. Hist.* ed. 2, vii. 417, n. 4; *ilippi, Sicil.* ii. 71.

4. DIACRIA DEPRESSA.

elongated, triangular, superiorly dilated, inferiorly sharp pointed, strongly arched, depressed, glossy, underneath three-lobed; aperture narrow, semicircular, deeply cleft on each side.

æa depressa, *D'Orb. Voy. Am. Mer. Moll.* 110, t. 7, f. 11—14; *sh. in Lamk. Hist.* ed. 2, vii. 422.

5. DIACRIA LÆVIGATA.

somewhat round, depressed, thin, shining, glossy, hooked anteriorly, shortly eared on each side.

æa lævigata, *D'Orb. Voy. Am. Mer. Moll.* 110, t. 7, f. 15—19; *sh. in Lamk. Hist.* ed. 2, vii. 423.

e lisse, *Voy. Bonite Moll.* t. 5, f. 14, 20.

B. *Shell without any lateral slit.*

3. CLIO.

oval elongate, conical, without lateral appendages.—*Fins* extended, united behind, without any small intermediate lobe.—*Shell* elongate, angular, conical; mouth larger than the cavity, without any lateral slits.

(pyramidata), *Browne, Jam.* 386, 1756 (not *Pallas*, 1774, nor *F. Muller*, 1776); *Linn. Syst. Nat.* ed. 12, 1094, 1767; *Gmelin, N.* 3149.

Leodora caudata, *Blainv. Ann. Sc. Nat.* ix. 387, 388; *Lamk. Hist. ed.* 2, vii. 430.

Valæa caudata, *Roissi, Buffon de Sonnini*, v. 75? (vii. 37).

Leodora de Brown, *Blainv. D. S. Nat.* t. 59, f. 1; *Man. Malac.* t. 46, f. 1.

Pontica elegans, *Leach, MSS. Brit. Mus.* 1819.

Tab. Sicily.

a—o. Sicily. Presented by A. Melly, Esq.

p, q. Congo (Expedition). Presented by the Admiralty.

r, s. Coast of Bengal. Presented by Dr. Sinclair, R.N.

t, u. Animal and shell, in spirits. Congo Expedition.

Pontica elegans, *Leach, MSS. B. M.* 1819.

v, w. Animal and shell, in spirits. Sicily. Presented by A. Melly, Esq.

2. CLIO CUSPIDATA.

Shell with the lateral hooked points longer than the intermediate one.

Valæa cuspidata, *Bosc. Hist. Nat. Coq.* ii. 241, t. 9, f. 5—7 (1802); *Dict. Hist. Nat. Deterv.* xxv. t. 2, 35; *Lamk. Anim. s. Vert.* xi. 286, ed. 2, vii. 416; *Blainv. Dict. Sc. Nat.* xxii. 82; *D'Orb. Voy. Am. Mer. Moll.* 112, t. 7, f. 20, 24; *Moll. des Canar.* 30, No. 15.

Leodora cuspidata, *Quoy & Gaim. Voy. Ast. Zool.* ii. 384, t. 27, f. 1—5; *Rang. Monog.* ined.; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 82; *Philippi, Sicil.* ii. 71; *Cantraine, Mem.* 29, t. 1, f. 8.

Leodora cuspidée, *Voy. Bonite Moll.* t. 6, f. 11, 16.

Leodora Lessonii, *Rang. Monog.* ined.; *Lesson, Voy. Coq.* t. 10, f. 1.

Leodora quadrispinosa, *Rang. Monog.* ined.; *Lesson, Voy. Coq.* t. 10, f. 2 (animal erroneous).

a. Shell.

b—q. Shells. Sicily. Presented by A. Melly, Esq.

r, s. Animal and shell, in spirits. Sicily. Presented by A. Melly, Esq.

3. CLIO LAMARTINIERI.

Leodora Lamartinieri, *Rang. Mol. Cuba*, 83, note, from *Lapeyrouse*, t. 20, f. 1, 3; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 83, note.

Tab. Pacific Ocean.

4. CLIO DEPRESSA.

Cleodore plate, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 6, f. 26, not described.

Hab.

5. CLIO CHAPTALII.

Cleodore de Chaptal, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 1—5, not described.

Hab.

** *Side of mantle with elongate process. Pleuropus.*

6. CLIO PELLUCIDA.

Shell conical. Side of the mantle with elongated tentacula. *Pleuropus pellucidus, Eschsch. Isis, 1825; Zool. Atlas, iii. 1829 t. 15, f. 1.*

Cleodore courtée, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 7 10.

Cleodora, *Blainv. Man. Malac.*

Hab.

*** *Fossil.*

7. CLIO INFUNDIBULUM.

Cleodora infundibulum, S. Wood, Ann. and Mag. N. H.; I Gesch. iii. 353.

Fossil. Crag.

4. BALANTIUM.

Shell triangular, depressed, transversely waved; aperture ob narrow, oblique.

Balantium (recurvum), Leach, MSS. Brit. Mus. 1819; J Children, Jour. Roy. Inst. 1829, xv. 220, t. 7, f. ; Benson, Asiat. Soc. Bengal, iv. 176, 1835, vi. 150, 1837.

Cleodora sp., Rang, Guerin, Mag. Zool. 1834, t. 44.

Hyalæa (Cleodora) sp., D'Orb. Voy. Amer. 116.

Pontica (recurvum), part, Leach, MSS. Brit. Mus. 1819.

1. BALANTIUM RECURVUM.

Shell triangular, compressed, glossy, shining, transversely regularly striated, longitudinally three-ribbed on the back; apex acuminate, recurved; aperture oblong, narrow, oblique, angled on each side.

Balantium recurvum, *Children, Journ. Inst. Roy.* xv. 220, t. 7; *Rang, Mon.* ined.; *Benson, Jour. Asiat. Soc. Bengal*, iv. 176, 835, vi. 150, 1837.

Modiola recurvum, *Rang; Guerin, Mag. Zool.* 1834, t. 44; *Desh. & Lamk. Hist.* ed. 2, vii. 431.

Modiola recurvum, *D'Orb. Voy. Am. Mer. Moll.* 116, t. 8, f. 1—4. *Modiola recurvum*, *Voy. Bonite Moll.* t. 7, f. 11, 16.

a. Shell. Congo Expedition. Presented by the Admiralty.

b. Animal of a, in spirits. Congo Expedition. Presented by the Admiralty.

Pontica recurvum, *Leach, MSS. B. M.* 1819.

2. BALANTIUM INFLATUM.

Shell renflée, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 7, f. 17.

3. BALANTIUM AUSTRALE.

Shell conical, elongate, angulose, above convex, with a slight longitudinal groove, transversely striated; mouth semilinear.

Modiola australis, *D'Orb. Voy. Am. Mer. Moll.* 117, t. 8, f. 9—11. *Modiola australe*, *Voy. Bonite Moll.* t. 7, f. 20, 23.

a. Cape Horn.

4. BALANTIUM RUGOSUM.

Shell very much depressed, elongate, conical, flattened, slightly arched, irregularly transversely grooved above and below, flat; mouth linear.

Modiola rugosa, *D'Orb. Voy. Am. Mer. Moll.* 118, t. 8, f. 12—14.

b. Pacific Ocean.

5. VAGINELLA.

Shell oblong, ventricose, smooth; apex conical; mouth co-
transverse, without any lateral slit.

Vaginella (Vaginelle), *Daud. in Bosc, Vers.* i. 195; *Baster
Hist. Nat. Paris*, ii. 19; *Gray, Syn. B. M.* 1842, 86;
Elem. Conch. i. t. 3, f. 10.

Vaginula, *G. B. Sowerby, Gen. t.* —, *Manual*, 112, ed. 2, 2d
print). Not *Ferussac*.

Vaginule, *D'Orb. Voy. Amer. Merid.* 119 (note).

Creseis sp., *Rang, Ann. Sci. Nat.* xvi. t. 18, f. 2, t. 19, f. 1

Cleodora sp., *Desh. Ency. Meth.* iii. 1106; *Dict. Class
Blainv, Mal.* 481; *Grateloupe, Bull. Linn. Soc. Bord.* i.

1. VAGINELLA STRANGULATA.

Shell elongately ventricose, with an acute apex, depressed
at the aperture, smooth; aperture transverse, somewhat
compressed, sinuated on each side.

Cleodora strangulata, *Desh. Dict. Class. H. Nat. in La
ed.* 2, vii. 431; *Grateloupe, Bull. Linn. Soc. Bord.* ii. 7

Vaginella *Daudin*, in *Bosc, Vers.* i. 195.

Vaginella depressa, *Basterot, Mem. Soc. H. N. Paris*, ii. 1
16; *Bowdich, Elem. Conch.* i. t. 3, f. 10.

Vaginelle de Bordeaux, *Blainv. Malac.* t. 46, f. 2.

Creseis vaginella, *Rang, Ann. Sci. Nat.* xiii. 309, t. 18, f.

Vaginula *Daudinii*, *Sow. Gen.* f. 5; *Sow. Man.* 112, ed. 2

a, b. Fossil. Bordeaux.

6. STYLIOLA.

Body elongate, conical, rounded.—Shell elongate, conical,
drical; mouth larger than the cavity, without any later

Styliola (recta), *Lesueur, in Blainv. Mon. Moll.* 1825.

Creseis (Les Creseis), *Rang, in Ann. Sci. Nat.* xiii. 302, 1
1830, 207; *Desh. Dict. Class. H. Nat.* xiv. 351, 183
Mon. Moll. 115, t. 2, f. 3, 1829.

Creseis (or Criseis?), *Eschsch. Zool. Atlas*, iii. 1829, 17
Mol. Cuba, 85; *Sow. Gen.* tab.

Criseis, *Forbes, Rep. Brit. Ass.* 132, 1844.

Crisia, *Menke, Ziet. Mol.* 1844, 72, NOT LAMOUROUX.

odora c., *Blainv. Mon. Moll.* 1825; *Philippi, Sicil.* ii. 72.
 europus, *Gray, Syn. B. M.* 1841, 85, not *Esch.*
 palæa sp., *Quoy & Gaim.*

The French generic name of Rang has been very generally adopted
 the place of his Latin one, as in one or two other genera.

1. STYLIOLA SUBULA.

ell glossy, elongated, slightly inflated, acute at the apex; aper-
 are cordiform, beaked.

alæa subula, *Quoy & Gaim.* 1828; *D'Orb. Voy. Am. Mer. Moll.*
 19, t. 8, f. 15—19.

odora subula, *Quoy & Gaim. Ann. Sc. Nat.* x. 233, t. 8, f. 1—3;
Rang, Ann. Sc. Nat. xiii. 1828, t. 18, f. 1; *D'Orb. Moll. des*
Canaries, 31; *Desh. in Lamk. Hist.* ed. 2, vii. 432.

seis conica, *Eschsch. Zool. Atlas*, iii. t. 15, f. 3, 1831.

seis spinifera, *Rang. Ann. Sc. Nat.* xiii. t. 17, f. 1 (t. 18, f. 1);
Quoy & Gaim. Voy. Ast. ii. 382, t. 27, f. 15, 16, 44; *Sow. Gen.*
 4; *Desh. in Lamk. Hist.* ed. 2, vii. 432; *Cantraine, Mem.* 31,
 1, f. 11.

seis subula, *D'Orb. Ram. Sagra Hist. Cuba Moll.* 85.

odora spinifera, *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed.
 vii. 432.

odore alene, *Voy. Bonite Moll.* t. 6, f. 3—9.

a—y. Shells. Sicily. Presented by A. Melly, Esq.

2. STYLIOLA VIRGULA.

ell elongate, somewhat cylindrical, apex conical, very acute,
 edged, tinged with purple, everywhere glossy, smooth and very
 shining; aperture circular, simple.

seis virgula, *Rang, Ann. Sc. Nat.* xiii. 17, f. 2, 1828; *Icon. Regn.*
anim. Moll. t. 4, f. 9; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 86.

alæa virgula, *D'Orb. Voy. Am. Mer. Moll.* 121, t. 8, f. 26—28.

odora virgula, *D'Orb. Moll. des Canaries*, 31; *Desh. in Lamk.*
Hist. ed. 2, vii. 433.

odore virgule, *Voy. Bonite Moll.* t. 6, f. 18, 22, 25.

seis unguis, *Eschsch. Zool. Atlas*, iii. t. 15, f. 4, 1831.

ornuocopia, *Eschsch. Z. A.* iii. t. 15, f. 5, 1831.

aligula, *Eschsch. Z. A.* iii. t. 15, f. 6, 1831.

. Atlantic and Pacific Oceans.

3. STYLIOLA CORNIFORMIS.

Shell elongate, conical, rounded, smooth, diaphanous; apex acute, horn-like; mouth circular; lips equal.

Hyalæa corniformis, *D'Orb. Voy. Am. Mer. Moll.* 120, t. 8, f. 23.

Creseis corniformis, *D'Orb. Ram. Sagra Hist. Cuba Moll.* 87.

Hab. Atlantic Ocean.

4. STYLIOLA STRIATA.

Shell elongate, conical, ovate, inflexed, transversely striated, phanous, lucid, brittle, whitish; tip blunt; mouth and lips equal.

Creseis striata, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 2, 1828; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 87; *Desh. in Lamk. Hist.* ed. 2, *Cantraine. Mem.* 32, t. 1, f. 10.

Hyalæa striata, *D'Orb. Voy. Am. Mer. Moll.* 122, t. 8, f. 23—24.
Cleodora striata, *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed. 2, vii. 433.

Cleodore striée, *Voy. Bonite Moll.* t. 6, f. 1—4.

Creseis compressa, *Esch. Zool. Atlas*, iii. t. 15, f. 7, 1831.

Hab. Atlantic Ocean and Indian Seas.

5. STYLIOLA RECTA.

Shell very long, needle-like, conical, slightly bent, smooth, diaphanous, shining, brittle, whitish; apex acute, aciculate. Mouth circular.

Styliola recta, *Lesueur, in Blainv. Mon. Malac.* 1825.

Creseis aciculata, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 6, 1828; *D'Orb. Ram. Sagra Hist. Cuba Moll.* 88; *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Hyalæa aciculata, *D'Orb. Voy. Am. Mer. Moll.* 123, t. 8, f. 29.

Creseis clava, *Rang, Ann. Sc. Nat.* xiii. t. 17, f. 5, 1828.

Cleodora clava, *Desh. in Lamk. Hist.* ed. 2, vii. 433.

Cleodora aciculata, *D'Orb. Moll. Canar.* 31; *Philippi, Sicil.* ii. 72; *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Cleodore aciculée, *Voy. Bonite*, t. 6, f. 10, 17, t. 11, anat.

Creseis acus, *Eschsch. Zool. Atlas*, iii. t. 15, f. 2, 1831.

? *Cleod. zonata*, *Philippi, Sicil.* ii. 72, from *Chiage*, t. 82, uned.

a—r. Shells. Sicily. Presented by A. Melly, Esq.

6. *STYLIOLA TENUIS*.

Stylis tenuis, *Wahl.*

Fossil.

7. *STYLIOLA?* *VENTRICOSA*.

Mouth straight at the back, slightly ventricose in front, tapering to a point, nearly smooth, with faint sloping lines of growth and a strong longitudinal furrow.

Stylis ventricosa, *Sharp, Quart. Jour. Geol. Soc.* ii. 314, t. 13, f. 3.

Fossil. Wenlock Flag-stone, Wales.

8. *STYLIOLA?* *OBTUSA*.

Mouth short and conical, sides slightly curved towards a blunt point, smooth (?), with a longitudinal furrow.

Stylis obtusa, *Sharp, l. c.* 314, t. 13, f. 4.

Fossil. Wenlock Rock, Wales.

9. *STYLIOLA?* *GRACILLIMA*.

Mouth very long, straight and slender, tapering gently to a point.

Stylis gracillima, *Sharp, l. c.* 314, t. 13, f. 5.

Fossil. Wenlock Rock, Wales.

10. *STYLIOLA?* *PRIMÆVA*.

Mouth very long, linear, dilated towards the oral extremity, smooth or with indistinct traces of longitudinal grooves.—*Forbes.*

Mouth long, regularly tapering, smooth, with one (or more) longitudinal groove.—*Sharp.*

Stylis? primæva, *Forbes, Quart. Jour. Geol. Soc.* 1845, i. 146, f. 1;

Sharp, Quart. Jour. Geol. Soc. ii. 314, t. 13, f. 2.

Fossil. Palæozoic Rock, Denbighshire.

11. *STYLIOLA?* *SEDGWICKII*.

Mouth cylindrical, tapering, linear, marked with very numerous, fine, regular, transverse striæ; aperture dorsally angular.

Stylis? Sedgwicki, *Forbes, Quart. Jour. Geol. Soc.* 1845, i. 146, f. 2.

Fossil. Palæozoic Rock, Denbighshire.

7. THECA.

Shell fossil.

Theca, Forbes, *Quart. Jour. Geol. Soc.* ii. 314, t. 13, 1846; *L. & Bronn, Jahrb.* 1847, 634.

1. THECA FORBESII.

Sheath nearly flat behind, rounded in front, conical, and tapering to a point; aperture an obtuse-angled triangle, with the rounded off; surface finely striated, arched parallel to the mouth.

Theca Forbesii, Sharp, *Quart. Jour. Geol. Soc.* ii. 314, t. 13
Fossil. Ludlow Rock, middle part Kendal.

a. *Fossil.* Presented by S. Woodward, Esq.

2. THECA LANCEOLATA.

Theca lanceolata, Morris.

Fossil. Palæozoic Rocks, New South Wales.

8. CONULARIA.

Shell quadrangular, with a longitudinal groove at each angle, and regularly transversely striated. *Fossil.*

Conularia, Muller, in *Sow. Mon. Conch.* iii. t. 108, 1818, p. 260; *Brown, Leth.* 97, 1837; *Blainv. D. S. N.* xxxii. 193; *Malac.* 377, 622; *Flem. B. A.* 240, 1828; *Sow. Man.* ed. 2. p. 107; *D'Archiac & De Verneuil, Trans. Geol. Soc.* vi. 325, 1842; *Bull. Geol. France*, xiv. 563; *Austin, Ann. and Mag. N. S. W.* 407, 1845; *Leon. & Bronn, Jahrb.* 1843, 639.

Sowerby, when he first described this genus, regarded it as a *Nautilus*. Fleming keeps it in the same situation. Blainville placed it with the *Orthocera*. Hæninghaus showed, in 1837, that it had no chambers, and Messrs. D'Archiac and De Verneuil refer it to *Pteropoda*. D'Orbigny formerly (*Voy. Amer. Merid. Mém.* note) thought it was a *Pteropod*, but more lately he has regarded it as a *Heteropod*. I have sometimes thought it might be referred to *Asterias*: it is placed here with great doubt.

following species have been regarded as distinct:—

CONULARIA BRONGNIARTI.

aria Brongniarti, *D'Archiac & De Verneuil, Trans. Geol. Soc.* 1853, t. 31, f. 6, 1842.
 amitacea, *Sandb. in Bronn, Jahrb.* 1848, 18, t. 1, f. 9.

CONULARIA CANCELLATA.

aria quadrisulcata, *Sow. Mon. Conch.* iii. 107, t. 290, f. 3 (y); in *Murch. Silur. Syst.* ii. 626, t. 12, f. 22, a; *Vern. Bull.* l. 1840, xi. 177?; *Portl. Rep.* 393, t. 29, a, f. 3.
 verbyi, *Troost, Rep. Tennessee*, 1840, 53, not *Defr.*
 cellata, *Sandb. in Bronn, Jahrb.* 1847, 20, t. 1, f. 11.
 b. Fossil.

CONULARIA PYRAMIDATA.

aria pyramidata, *Hoeh. Goldfuss in Dechen, Handl. Geol.* 1832; *Bronn, Leth.* 1284.
 drisulcata, *Bronn, Leth.* 97, t. 1, f. 12.
 vata, *Sandb. in Jahrb.* 1847, 23.

CONULARIA QUADRISULCATA.

aria quadrisulcata, *Miller, MSS.*; *Sow. Mon. Conch.* iii. 107, 10, f. 4 (only); *Geol. Trans.* v. 422? 492, t. 40, f. 2, c.
 ericosta, *Sandb. in Jahrb.* 1847, 21.

CONULARIA ACUTA.

aria acuta, *Roe, Hartz.* 36, t. 10, f. 12, var. f. 13.
 —, n. s., *Sandb. in Bronn, Jahrb.* 1845, 441.
 nata, *Sandb. in Bronn, Jahrb.* 1847, 14, t. 1, f. 2.

CONULARIA BUCHII.

aria Buchii, *Eichw. Silur.* 103.
 ihi, *Bronn, Index.*

CONULARIA SOWERBYI.

aria Sowerbyi, *Defr. in Blain. Malac.* 377, t. 14, f. 2, b, e;
 euil in *Murchison's Russia*, ii. 348.
 isulcata, *Sandb. in Bronn, Jahrb.* 1847, 19, t. 1, f. 10.

8. CONULARIA CURTA.

- Conularia curta*, Sandb. in Bronn, *Jahrb.* 1847, 14, t. 1, f. 1.
C. quadrisulcata, *Hist. Leth. Suec.* i. 30, t. 10, f. 5, not Sow.

9. CONULARIA DEFLEXICOSTATA.

- Conularia quadrisulcata*, Sandb. in *Jahrb.* 1849, 401, not Sow.
C. deflexicostata, Sandb. in *Jahrb.* 1847, 16, t. 1, f. 6.
C. ———, n. s., Sandb. in *Jahrb.* 1844, 175.

10. CONULARIA ELONGATA.

- Conularia elongata*, *Portl. Rep.* 393, t. 29, a, f. 2.
C. pectinicosata, Sandb. in *Jahrb.* 1847, 17, t. 1, f. 7.

11. CONULARIA GEROLSTEINENSIS.

- Conularia Gerolsteinensis*, *Arch. & Verneuil, Trans. Geol. Soc.* 352, t. 31, f. 5.
C. tenuistriata, Sandb. in *Jahrb.* 1847, 15, t. 1, f. 3.

12. CONULARIA GERVILLEI.

- Conularia Gervillei*, *Arch. & Verneuil, Trans. Geol. Soc.* vi. 29, f. 4.
C. tuberosa, Sandb. in *Jahrb.* 1847, 22.
 Var. ? *C. subparallela*, Sandb. in *Jahrb.* 1847, 16, t. 1, f. 4.

13. CONULARIA IRREGULARIS.

- Conularia irregularis*, *Kon. Carb.* 496, t. 45, f. 2.
C. quadrisulcata, *Kon. in D'Omali. Geol.* 516.
C. latisulcata, Sandb. in *Jahrb.* 1847, 16, t. 1, f. 5.

14. CONULARIA ORNATA.

- Conularia ornata*, *Arch. & Verneuil, Trans. Geol. Soc.* vi. 353, f. 5.
C. serrata, Sandb. in *Jahrb.* 1847, 18, t. 1, f. 8.

** *Subcylindrical.*

15. CONULARIA ?? TERES.

- Conularia teres*, *Sow. Mon. Conch.* iii. 108, t. 260, f. 1, 2.

FAM. II. TRIPTERIDÆ.

elongate, cylindrical, divided into two distinct parts; the front with two large lateral wings, united below to a flat central portion; the abdominal part cylindrical.

the head cylindrical or subangular near the mouth, ending in an acute point, separated from the anterior cavity by an entire transverse suture; the tip is often deciduous in the adult.

Tripteridæ, Gray, *Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1848, 1850; *Agassiz, Nomencl.*

Tripteridæ (part), *Cantraine, Moll. Medit.* 31, 1841.

Tripteridæ (part), *D'Orb. Moll. Cuba*, i. 70, 89, 1841.

"Intermediate between Cleodora and Pneumodermon," *D'Orb. Cuba*,

1. TRIPTERA.

Triptera (Triptère), *Quoy & Gaim. Voy. Uranie*, 416, 1824 (wanting the shell); *Ann. Sci. Nat.* 1825, vi. 76, t. 2; *Blainv. Mal.*

Triptera c. *Tripter*, *Rang, Man.* 116, 1829; *Poit. & Mich. Gal.* 5.

Triptera, *Menke, Syn.* ed. 2, 9, 1830, not *Lesson*.

Triptera, *Gray, Syn. B. M.* 1842, 92.

Triptera (columnella), *Rang, Ann. Sci. Nat.* 1827, 320; *Isis*, 1829, 1830; *Mon. Moll.* 116, 1829 (not *Decandolle* nor *Peron*); *Deshayes, Voy. Meth.* iii. 35, 1830; *Lamk. Hist.* ed. 2, vii. 430; *Guerin, Moll. Moll.* ii. 1843; *Bronn, Leth.* 985, 1838; *Sow. Gen. Shell.*

Triptera; *Conch. Man.* ed. 2, 130, 278, 1842; *Menke, Syn.* ed. 2, 9, 1830; *Benson, Jour. Asiat. Soc. Bengal*, 1835, 698; *Cuvier, Reg. Anim.* ed. 2, 1830; *Cantraine, Malac. Medit.* 31, 1841; *D'Orb. Moll. Cuba*, i. 70, 89; *Voy. Amer. Merid.* 124; *Desh. in Lamk. Hist.* ed. 2, vii. 435.

Triptera (obtusa), part, *Quoy & Gaim. Voy. Uran.* t. 6.

Triptera (obtusa), part, *Rang, Ann. Sci. Nat.* xiii. 1828.

. TRIPTERA COLUMNELLA.

glossy, anteriorly yellow coloured; wings oblong, anteriorly orange coloured. Shell elongate, cylindrical, swollen posteriorly, terminated anteriorly by an ovately transverse aperture, of a glossy appearance.

Cuvieria columnella, Rang, *Ann. Sc. Nat.* xii. 323, t. 45, B. f. 1—1827.

Cuvieria columella, D'Orb. *Voy. Am. Mer. Moll.* 125, t. 8, f. 33—39; *Guerin, Icon. Reg. An. Moll.* t. 4, f. 10.

Cleodora obtusa, Quoy & Gaim. ? *Voy. Uran.* t. 6, f. 5.

Creseis obtusa, Rang, *Ann. Sc. Nat.* xiii. t. 17, f. 4, 1828.

Cuvieria obtusa, D'Orb. *Ram. Sagra Hist. Cuba Moll.* 89; *Moll. de Canar.* 32 (1839).

Cuvierie colonnette, *Voy. Bonite Moll.* t. 12, anat.

Cleodora columnella, *Desh. in Lamk. Hist.* ed. 2, vii. 435.

a—c. Coast of Brazil. Presented by Dr. Sinclair, R.N.

2. TRIPTERA ROSEA.

Body rose-coloured. Shell — ?

Triptera rosea, Quoy & Gaim. *Voy. Uranée*, 416, t. 66, 1830
D'Orb. *Voy. Amer. Merid.* 126, note; *Ann. Sci. Nat.* 1825, t. 2, f. 5.

Hab. Port Jackson.—Quoy.

3. TRIPTERA ORYZA.

Shell smooth, shining, depressed, cylindrical; sides near the septa rather more ventricose; apex elongate, acute. Length $\frac{1}{2}$ an inch.

Cuvieria oryza, Benson, *Jour. Asiat. Soc. Bengal*, 1835, 698.

Hab. Tropical Indian Ocean.—Benson.

3. TRIPTERA ASTESANA.

Shell elongately cylindrical, truncated at the posterior extremity, terminated anteriorly with an oblique, somewhat triangular aperture, polished internally and externally, shining.

Cuvieria Astesana, Rang. *Ann. Sci. Nat.* xvi. 498, t. 19, f. 2.

Cleodora Astesana, *Desh. in Lamk. Hist.* ed. 2, vii. 434.

Fossil in Astesan.

FAM. III. CYMBULIADÆ.

Animal globular or ovate.

Fins 2, horizontal, opposite, on each side of the mouth, with a small intermediate lobe.

Shell cartilaginous, slipper-shaped, rarely wanting.

- mbuliadæ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847, 204; *Agassiz, Nomen.*
 mbulidæ, *Cantraine, Malac. Médit.* 33, 1841.
 erobranchia, *b, Gray, Lond. Med. Rep.* 1821, 235.
 piacea, part, *Oken, Leherb.* 1815.
 yalea, part, *Ferussac, Fab. Syst.* 25, 1821.
 yaleacea, part, *Menke, Syst.* 4, 1828, ed. 2, 9, 1830.
 yalidæ, part, *D'Orb. Moll. Cuba*, i. 70, 1841.

Synopsis of the Genera.

- CYMBULIA. Shell slipper-shaped.
 EURIBIA. Shell globular, membranaceous. Mouth round, spread out.
 PSYCHE. Shell none? Body globular. Fins separate, lateral.
 TIEDEMANNIA. Shell none? Fins forming a broad expanse.

I. CYMBULIA.

Shell gelatino-cartilaginous, oblong, slipper-shaped, covered with a thin, scarcely visible membrane; mouth elongate, truncated in front.—*Fins* large, rounded, with a small, elongate, intermediate lobe.

Cymbulia (proboscidea), *Peron & Lesueur, Ann. du Mus.* xv. 66, 1810; *Lamk. Extr. du Cour.* 1812; *Hist.* vi. 292, ed. 2, vii. 437; *Cuvier, Reg. Anim.* ii. 1817, ed. 2, 1830; *Schweigger, Naturg.* 750, 1820; *Deshayes, Ency. Meth.* iii. 42; *Ferussac, Tabl. Syst.* 25, 1821; *Rang, Man.* 113, 1829; *Blainv. Malac.* 481, 1825; *Latreille, Fam. Nat.* 1825; *Quoy & Gaim. Voy. Astrol.* ii. 373, 1832; *Van Beneden, Nouv. Mem. Acad. Brux.* xii.; *Menke, Syn.* 4, ed. 2, 8; *Zeitsch. f. Malak.* 1844, 77; *Cantraine, Malac. Médit.* 33; *D'Orb. Moll. Cuba*, i. 70, 1841; *Gray, Lond. Med. Rep.* 1821; *Scacchi, Antol. de Sci. Nat.* i. 72, 1841; *Sowerby, Gen. Shell.* t.

I. CYMBULIA PROBOSCIDEA.

Shell elongate, oblong, with several dentate longitudinal ridges.

Cymbulia proboscidea, *Peron & Lesueur, Ann. Mus.* 1810, xv. t. 3, 10—12, animal reversed; *Rang, Man.* 113.

Cymbulia Peronii, *Cuvier, Reg. Anim.* ii. 380; *Lamk. Hist.* vii. 438; *Cantraine, Mem.* 34; *Philippi, Sicil.* i. 102, ii. Cymbulie, *Blainv. Dict. Sci. Nat.* t. 59, f. 2; *Man. Malac.* t. animal reversed.

- a. Shell, dry. Mediterranean.
- b. Animal and shell, in spirits. Mediterranean.
- c. Animal and shell, in spirits. Sicily. Presented Melly, Esq.

2. CYMBULIA OVATA.

Shell ovate, globose, subcartilaginous, soft, lucid, spined; lanceolate, reticulated, white.

Cymbulia ovata, *Quoy & Gaim. Voy. Astrol.* ii. 373, t. 27, 30; *Desh. in Lamk. Hist.* ed. 2, vii. 438.

Hab. Amboina.

3. CYMBULIA RADIATA.

Shell unknown; wings transverse, rounded, separated by a p the middle, radiated with blackish points.

Cymbulia radiata, *Quoy & Gaim. Voy. Astrol. Moll.* ii. 375. f. 33, 34; *Desh. in Lamk. Hist.* ed. 2, vii. 438.

Hab. Amboina.—*Quoy.*

4. CYMBULIA PUNCTATA.

Very small; wings ovately rounded, white, pointed with red.

Cymbulia punctata, *Quoy & Gaim. Voy. Astrol.* ii. 377, t. 27, 36.

Hab. New Holland.

5. CYMBULIA NORFOLKENSIS.

Shell somewhat cartilaginous, ovate, spined, white; wings n bilobed, connected together by a long point.

Cymbulia Norfolkensis, *Quoy & Gaim. Voy. Astrol.* ii. 376, t. 31, 32; *Desh. in Lamk. Hist.* ed. 2, vii. 439.

Hab. South Seas, Norfolk Island.

2. EURIBIA.

ial globular; wings 2, horizontal, opposite on each side of the mouth, and with a small intermediate lobe.—Shell cartilaginous, membranaceous, thin, transparent, regular, shaped like a hood; mouth round, spread out.

ibia (hemispherica), Rang, *Ann. Sci. Nat.* 1827, xii. 328; *Man. Moll.* 117; *Desh. Ency. Meth.* iii. 121; *Oken, Isis*, 1829, 319; *Guerin, Iconog. Moll.* 12.

ibia (hemispherica), Menke, *Syn.* ed. 2, 9, 1830 (not Hubner, 806, nor Illiger, nor Boisduval, nor Eschscholtz, 1829).

Orbigny observes he has never found the genera *Psyche* and *ibia* of Rang; and he further remarks, "De petit godets absents semblables à la coquille des *Euribie*, et transparens comme sont les coquilles des *Pteropodes*, nous parurent être, pendant que temps la Coquille de ce dernier genre, mais nous avons connu depuis que ce n'était que la partie cephalique d'un *Crus-*, qui se détache avec beaucoup de facilité." *Voy. Amer. id. Moll.* 75.

1. EURIBIA HEMISPHERICA.

nal white, rather transparent; fins oval, narrow at the base; mouth black; viscera brown. Shell very thin, flexible, spherical, yellow; mouth horizontal, very large.

bia hemispherica, Rang, *Ann. Sci. Nat.* xii. (1827), 329, t. 45, f. 9, 1011; *Guerin, Icon. Moll.* 12.

. Atlantic Ocean.

2. EURIBIA GAUDICHAUDI.

bia de Gaudichaud, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 1, f. 1, 6, not described.

3. PSYCHE.

free, membranaceous, without any distinct head; tentacles 2; wings 2, lateral, elongate, without any intermediate lobe. Shell none (or very thin, membranaceous?)

he, Rang, *Ann. Sci. Nat.* 1825, v. 284; *Man. Moll.* 117 (not *Man.* 1735); *Isis*, 1827, 749; *Cuvier, R. A.* ed. 2; *Guerin, Icon. Moll.* 11; *Gray, Syn. B. M.* 1842; *Proc. Zool. Soc.* 1848.

CATALOGUE OF PTEROPODA.

1. **PSYCHE** GLOBULOSA,

Psyche globulosa, Rang, *Ann. Sci. Nat.* 1825, v. 284, t. 7, f. 1.
Mem. Moll. 117; Guerin, *Icon. Moll.* 11.

Hab. Isle St. Pierre, near Newfoundland.

4. TIEDEMANNIA.

Body gelatinous, transparent; neck elongated; tentacula 2; *very large*, cuneate, forming a disk; mouth below, surrounded by the lips.—*Shell none.*

Tiedemannia, Chiage in Van Beneden, *Nov. Mem. Acad. Brux.* 21, 1839; Chiage, *Anim. Invert. Sicil.* i. 96, 1841; Krohn, *Naturg.* 1844, 324, t. 9, f. a, 1847, 36, t. 2, f. A; Philippi, *Sicil.* ii. 214; *Zeitsch. fur Mol.* 1844, 204.

Cymbulia sp., Beneden, *Mem. Ac. Brux.* xii.

? *Gleba* sp., *Forsk. Faun. Arab.* t. 43, D.

Differs from *Cymbulia* in the mouth being prolonged and has no shell.

1. TIEDEMANNIA NEAPOLITANA.

Tiedemannia Neapolitana, Chiage, *Anim. Invert.* 96, t. 32, f. 1841; Philippi, *Sicil.* ii. 215, 1844.

Tiedemannia creniptera, Krohn in Erichs. *Arch. Naturg.* 1844, t. 9, f. a; Erichs. *Arch. Naturg.* 1847, 36, t. 2, f. A.

Cymbulia . . . Beneden, *Nov. Mem. Acad. Brux.* xii.; *Ontologia di Sci. Nat. Napoli*, 1841, 81; *Isis*, 1843, 636; *Zeitsch. f. Mol.* 1844, 78.

Hab. Naples.

B. *Body and shell spiral. Operculum distinct, spiral.*

FAM. IV. LIMACINIDÆ.

Body spiral, sinistral; fin without any intermediate foot-like lobe.
Shell spiral, sinistral, with the mouth angularly produced on the columella side.

Operculum distinct, spiral (rarely wanting??).

- cinidæ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847, 3.
 cinadæ, *Forbes & Hanley, Brit. Moll.* ii. 379, 1849.
 branchia, *a, Gray, Lond. Med. Rep.* 1821, 235.
 caeca (part), *Menke, Syn.* 4, 1828, ed. 2, 8, 1830.
 cæ (part), *Rang. Mon.* 113, 1829.
 tarum (part), *Deshayes, Ency. Meth.* iii. 343, 1830.
 idæ (part), *D'Orb. Moll. Cuba*, i. 70, 1841.
 cinæ (Les Limacines), part, *Feruss. Fab. Sys.* 25, 1821 (not
rainson, nor *Blainv.*)
 branchia (part), *Gray, Lond. Med. Rep.* 1821.
 phala (part), *Lat. Fam. Nat.* 1825.
 tidæ (part?), *Gray, Proc. Zool. Soc.* 1848, 149.

These animals have been confounded, by D'Orbigny and others, with *Atlanta*, which has a compressed foot with a sucker on the outer edge, a distinct head, and no lateral fins.

Scholtz's figure of *Steira* (*Isis*, 1825, t. 5, f. 3) appears to unite the two fins of *Limacina* with the head, tentacles, eyes, &c. of *Atlanta*. It is most probably only a bad figure of that genus, as it has not been observed by any succeeding zoologist. I placed it in the same family with *Limacina*.

1. LIMACINA.

Foot elongate, spiral; head indistinct; mouth at the union of the lateral fins and intermedial lobe, with two small labial swellings; tentacles 2, elongate, rounded, united at their base by an intermediate subcircular lobe, bearing an *operculum*; mantle large, open in front, forming a large gill cavity; gills in the mantle; vent on the left side of mantle.—*Shell* univalve, spiral, sinistral, containing the animal; operculum vitreous, thin, transparent, spiral, of several whorls with a central muscular scar. (See *D'Orb. Amer. Moll.* t. 12, f. 24 and 39).

Limacina, (helicalis), *Cuvier, Reg. Anim.* iii. 1817; *Lamk. Hist. Nat.* 290, 1819, ed. 2, vii. 435; *Schweigger, Naturg.* 750, 1820; *Gray, Lond. Med. Rep.* 1821; *Ferussac, Fab. Syst.* 25, 1821; *Menke, Syn.* 4, 1828, ed. 2, 8, 1830; *D'Orb. Moll. Cuba*, i. 70, 1841; *Rang, Man.* 113, 1829; *Eschs. Isis*, 1825, 735; *Desh. E. Moll.* iii. 343; not *Hartmann*, 1821; nor *Wiegmann*, 1832; nor *Sowerby*; nor *Sowerby, Genera*, fig. so named is *Atlanta*.

- Spiratella* (limacina), *Blainv. Dict. Sci. Nat.* xxxii. 284, 182
Man. Malac. 494, 1825; *Desh. Ency. Meth.* iii. 471; *S*
Conch. Man. 100, ed. 2, 263.
- Kronjacht, *Oken, Lehrb. Nat.* 1817.
- Argonauta sp., *O. Fab.*
- Clio sp., *Phipps*; *Gmelin, S. N.*
- Heterofusus (retroversus), *Fleming, Brit. Anim.* 498, 1833; *G*
Proc. Zool. Soc. 1848, 149.
- Peracle (Flemingii), *Forbes, Rep. Brit. Ass.* 1843, 132, 249.
- Scæa (retroversus), *Philippi, Moll. Sicil.* ii. 164, 1844.
- Helicophora, *Gray, Syn. B. M.* 1840, 1844, 59.
- Atlanta (sub-genus Heliconoides), *D'Orb. Voy. Amer. M*
Moll. 174, 184.
- Spirialis (Les Spiriale), *Eydoux & Souleyet, Rev. Zool. Soc.* 18
Cuvier, 235; *Weigm. Arch.* 1841, ii. 265; *Gray, Proc. Zool.* 1
1847, 203; *Loven, Ind. Moll. Scand.* 4, 1846; *Forbes & Ha*
Brit. Moll. ii. 382.
- Heliconoides, *D'Orb.*; *Gray, Proc. Zool. Soc.* 1848, 149.
- Limacina sp., *Benson, Jour. Asiat. Soc. Calcut.* 1835, 176.
- Campylonaus, *Gray, Proc. Zool. Soc.* 1848, 149, not *Benson*.
- Fusus sp., *Fleming, Wern. Trans.* iv. 498; *Brit. Anim.* 349.

Limacina, so well described by O. Fabricius and other zoologists, appears to have been only known to Swedish, Danish and English naturalists. Moller, who well knew the type, lately added to the genus a turritid species. These two species are the giants of the genus. The more minute species of the Atlantic and Pacific Oceans have been described as a different genus, under various names, by several authors. D'Orbigny thought *Limacina (arctica)* might be a badly preserved *Atlanta* (*Voy. Asiat. Merid. Moll.* 75): he first noticed, figured and described smaller species (*Voy. Amer. Merid.* t. 12, f. 24), and also figured the operculum, but he thought some species were without any: and though he described the colour of the animal, he appears never to have seen them expanded, as he regards the genus as a section of *Atlanta*, which has a very different kind of animal. I have not been able to find the operculum on our specimens of the arctic species, but they are in a very broken condition. Chemnitz, Fleming and Philippi arranged the more turritid species with near the *Fusi* or *Pleurotomæ*: they differ from the shell of the young *Carinariæ Atlantæ* (see *D'Orb. Amer. Merid. Moll.* t. 11, 7—9) in the shell being reversed.

Limacina arctica occurs in immense quantities in the North Sea but rarely out of the sight of land.—Scoresby.

Spire subglobose, depressed; axis umbilicated. Limacina.

1. LIMACINA ARCTICA.

subglobose, subdiscoidal; spire slightly raised; whorls 6, last
e, with a very obscure keel; axis umbilicated, keeled on the
e. Diam. $\frac{3}{8}$ ths of an inch.

ina arctica, *Loven, Moll. Scand. Kong. Vetensk. Akad.* 1847,
t. 3, f. 6.

auta Argo, *Muller, J. Dan. Prod.* 2877.

Helicina, *Pallas, Spic.* x. 38.

Helicina, *Gmelin, S. N.* 3149; *Phipps, Voy. North*, 195;
ssi, *Buff. Moll.* v. 59? *Scoresby, Arct. Reg.* i. 543, t. 16, f. 11,
not good.

ina arctica, *Sow. Man. f.* from Scoresby; *Leach, in Ross*
t. Baffin's Bay, i. 172, 1819.

ina helicinalis, *Lamk. Hist.* No. 1, ed. 2, vii. 436; *Sow. Gen.*

ine, *Cuvier, Reg. Anim.* ii. 380.

auta arctica, *O Fab. F. Groenl.* 386; *Ross, Voy. South and*
arct. Reg. ii. 143?

ella limacina, *Blainv. D. S. N.*; *Malac.* t. 48, f. 5, from
resby.

ella arctica, *Desh. Ency. Meth.* iii. 971.

b. Animal, in spirits. N. Sea. Arctic Expedition. Pre-
sented by Colonel Sabine.

d. Animal, in spirits. Greenland. From Mr. Moller's col-
lection.

2. LIMACINA INFLATA.

very thin, transparent, vitreous, discoidal, sinistral; axis
bilicated; spire scarcely exceeding the last whorl; whorls 3,
ooth, rather large, modified by the penultimate whorl, heart-
ped; peristoma disunited, nicked on each side, and with an
ngated, strong, slightly arched beak in front; operculum
ssy, very thin, transparent, few whorled.

ale rostrale, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 15, f.
-10.

lis rostralis, *Eydoux & Souleyet, Rev. Zool. Soc. Cuvier*, 1840,
5.

anta inflata, *D'Orb. Voy. Amer. Merid.* t. 12, f. 16—19, not
od.

3. LIMACINA JEFFREYSII.

Shell subdiscoidal, spire much depressed; whorls, three last rounded; lips very acute, mucronated.

Spiralis Jeffreysii, *Forbes and Hanley, Brit. Moll.* ii. 386.

Hab. British Channel. Coll. Mr. Jeffreys.

3. LIMACINA ROTUNDA.

Shell subdiscoidal, smooth, umbilicated; spire rather slightly raised; last whorl moderately swollen; mouth roundish.

Atlanta (Heliconoides) rotunda, *D'Orb. Voy. Amer. Meri* t. 12, f. 20—24.

Hab. Atlantic Ocean.

5. LIMACINA VENTRICOSA.

Shell globular, ventricose, thin, glassy, sinistral; axis large bilicated; spire conical, short; whorls 4, last swollen larger than the others; mouth large, oblique, angular; periphery sharp-edged, not united, forming an angular projection beyond the arched columella.

Spiralis ventricosa, *Eydoux et Souleyet, Rev. Zool.* 1840
Forbes and Hanley, Brit. Moll. 385.

Spirale ventre, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 1.
—16.

Atlanta Rangii, (*Atlantes de Rang*), *D'Orb. Voy. Amer. M.* t. 12, f. 25—28.

Var. smaller; umbilicus less open; whorls fewer; mouth more angular and less angular.—*Eydoux & Souleyet.*

Hab. Atlantic Ocean.

6. LIMACINA AUSTRALIS.

Shell turbinate, thin, brittle, sinistral, rather largely umbilicated; spire elevated, conical; whorls 6 or 7, separated by a deep groove; mouth oblique, irregularly quadrilateral, rather angular; periphery not united; columella straight.

Spiralis australis, *Eydoux et Souleyet, Rev. Zool. Soc.* (1840), 237.

Spirale australe, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 1.
—26.

Hab. Cape Horn.

* Shell conical, turrated; spire elongate; axis unperforated.
Heterofusus.

7. LIMACINA RETROVERSA.

conical; whorls 4, last very ventricose, more than half the length of the shell.

mn. Conch. Cab. ix. 129, t. 113, 6972, 973?

is retroversus, *Fleming, Wern. Mem.* iv. 498, t. 15, f. 2; *Brit. Anim.* 349; *Treat. Moll. Anim.* t. 12, f. 45; *Thorpe* (Hanley), *it. Man. Conch.* 201.

rofusus retroversus, *Flem. l. c.* 498.

cle Flemingii, *Forbes, in Thompson Rep. Brit. Ass.* 1843, 249; *Jfreys, Ann. Nat. Hist.* xxx. 1847, 16.

a stenogyra, *Philippi, Moll. Sicil.* ii. 164, t. 25, f. 20.

acle physoides, *Forbes, Rep. Brit. Ass.* 1843, 132.

alis Flemingii, *Forbes & Hanley, Brit. Moll.* 384, t. 57, f. 4, 5.

retroversa, *Philippi, Sicil.* ii. 164, from *Fleming.*

North Sea.

t—d. North Sea. From Mr. Damon's collection.

8. LIMACINA TROCHIFORMIS.

thin, glassy, very transparent, top-shaped, swollen, sinistral, perforated; spire moderate, conical; whorls 5, rapidly decreasing in size, the last very large, swollen; mouth oblique, oval; lumella smooth and slightly arched; fins moderate, rounded at the end.

ata trochiformis, *D'Orb. Voy. Amer. Merid.* t. 12, f. 29—31.

alis trochiformis, *Eydoux et Souleyet, Rev. Zool. Soc. Cuvier,* 40, 237.

ale trochiforme, *Eydoux et Souleyet, Voy. Bonite Moll.* t. 15, 27—34.

* Shell rather more elongate; fins elongate, acute.

China.

9. LIMACINA MACANDREI.

turrated, fusiform; whorls 5, gradually enlarging, last not long as the spire; mouth elliptical, rather narrow.

mn. Conch. Cab. ix. 128, t. 113, f. 971, broken.

rbo lunaris, *Gmel. S. N.* i. 3587, from Chemn.

? *Scæa lunaris*, *Philippi, Moll. Sicil.* ii. 164, from *Chemn.*
Spirialis MacAndrei, *Forbes & Hanley, Brit. Moll.* ii. 385,
 6, 7.

Hab. North Sea.

10. LIMACINA BALEA.

Shell turritid; whorls 7; spire prominent; apex acute.

Limacina balea, *Moller, Moll. Groenl.* 4.

Spirialis stenogyra, *Loven, Moll. Scand.* 4?

a, b. Animal, in spirits. Groenland. From Mr. Mc
 lection.

11. LIMACINA BULIMOIDES.

Shell thin, diaphanous, glossy, elongate, not umbilicated,
 spire high; whorls 6; apex acute; mouth irregular, qu
 ral, angular in front.

Atalanta bulimoides, *D'Orb. Voy. Amer. Merid.* t. 12, f. 36
 good).

Spirialis bulimoides, *Eydoux et Souleyet, Rev. Zool. Soc.*
 1840, 238; *Forbes and Hanley, Brit. Moll.* ii. 386.

Spiriale bulimoide, *Eydoux et Souleyet, Voy. Bonite Moll.*
 35, 42.

Hab. Atlantic and Indian Oceans.

12. LIMACINA CLATHRATA.

Shell very thin, brittle, oblong, swollen, sinistral, not umi
 covered, regular, cancellated, longitudinal and transver
 spire slightly elevated; whorls 3 or 4, last swollen, mu
 than the others; suture deep; mouth large, elongate,
 angular in front; columella smooth, arched.

Spiriale reseau, *Eydoux et Souleyet, Voy. Bonite Moll.* t.
 —19.

Spirialis clathrata, *Eydoux et Souleyet, Rev. Zool. Soc. Cuv.*
 239.

Atlanta reticulata (*Atlantes en reseau*), *D'Orb. Voy. Amer.*
 t. 126, 32—35, and 39 operculum.

Hab. Atlantic and Pacific Oceans.

ORDER II. GYMNASOMATA.

aked, without any shell.

istinct.

2 or 4, at the junction between the head and the body, with-
 tral intermediate lobe or rudimentary foot.

terior.

odia oligoptera, part, *Rafin. Anal. Nat.* 1815.

lia, *Rafin. Anal. Nat.* 1815.

somata, *Blainv., Rang, Mann. Moll.* 117.

soma, *Blainv. Malac.* 482, 1825.

anchia, § c, *Gray, Med. Repos.* 1821, 235.

halis, *Latreille, Fam. Nat.* 1825.

odermi, *D'Orb. Moll. Cuba*, i. 70, 1841.

ios, *Rang, Man. Moll.* 117.

æ, *Menke, Syn.* 5, 1828.

e, *Menke, Syn.* ed. 2, 9, 1830; *Wieg. Hand. Zool.* 517,

h.

ia, *Bronn, Gesch. d. Naturg.* iii. 353.

ules, part, *Blainv. Bull. Soc. Phil.* 1814, 179.

FAM. V. CLIONEIDÆ.

l fusiform. Head with a series of conical prominences on
 side. Wings 2, with a central foot-like appendage.

lea, part, *Rafin. Anal. Nat.* 1815.

a, *Oken, Lehrb.* 1815.

s (Les Clios), *Ferussac, Tabl. Sys.* 25, 1821; *Rang, Man.*
l. 117, 1829.

læ, *Gray, Syn. Brit. Mus.* 1840; *Proc. Zool. Soc.* 1847.

æ, part, *Menke, Syn.* 5, 1828.

e, part, *Menke, Syn.* ed. 2, 9, 1830; *Wieg. Handb. Zool.*
 ed. 2, 545.

ea nuda nageant, part, *Latr. Dict. Hist. Nat.* xxiv. 109, 1804.

Synopsis of the Genera.

ONE. Head indistinct. Tentacula distinct.

ODITA. Head distinct. Tentacula not apparent.

1. CLIONE.

Head indistinct; tentacula 6, conical, three on each side.—*Top* of lingual membrane, broad, convex behind, slightly two-lobed and denticulated in front; lateral teeth 12-12, simple, arch rather swollen at the base, the outer ones gradually smaller. *Loven, l. c. t. 3, f. 4.*

In swimming it brings the top of its fins almost in contact, on one side and then on the other.—*Scoresby, Arct. Reg. 544.*

Clione, Pallas, Spicil. Zool. x. 28, 1774; Gmelin, S. N. ed. 3148; Moller, Ind. Moll. Groenl. 4, 1842; Rafin. Anal. 1815.

Clio, O. F. Muller, Zool. Dan. Prod. 29, 1776 (not Broun, l. c.); O. Fab. Faun. Groen. 334, 1780; Brug. E. M. i. 505, 1792; Peron & Lesueur, Ann. du Mus. 1810; Lamk. Syst. Anim. 1801; Ext. du Cours. 1812; Phil. Zool. 1809; Hist. A. S. 1809, 286, 1819, ed. 2, vii. 423; Cuvier, Anal. Comp. 1800; Ann. Mus. 1802; Ann. Mus. 1804; Reg. Anim. 1817, ed. 2, 1817; Blainv. Dict. Sc. Nat. ix. 404; Malac. 482, 1825; Rang, 1818, 1829; D'Orb. Moll. Cuba, i. 70, 1841.

? *Amphirea, Rafin. Anal. Nat. 1815, no character or type.*

? *Dicroptera, Rafin. Anal. Nat. 1815, no character or type.*

1. CLIONE BOREALIS.

Gelatinous, pellucid, pale blue; mouth and end of the body *protrude* out of water, hyaline; wings somewhat triangular; tail *and*

Ataursak, Crantz, Groen. 142.

See *Gottes Pferd, Adelong Gesch. 410, t. 17, f. 18.*

Clio papilionacea, Pallas, Spic. Zool. x. 28, t. 1, f. 18, 19.

*Clio borealis, Brug. E. M. n. 1; E. M. t. 75, f. 3, 4; Cuvier, l. c. du Mus. i. t. 17; Roissi, Buffon, Moll. v. 68, t. 52, f. 1; Linn. Hist. ed. 2, vii. 425; Eschricht, Vidensk. Selsk. Nat. 1838: *Life in Ross, Baffin Bay, 122; Loven, Ind. Moll. Scand. i.; Vet. Akad. 1847, 188, t. 3, f. 4.**

Clio retusa, Muller, Zool. Dan. Prod. 274, 2, not Linn.; Fab. l. c. Groenl. 334.

Clio Limacina, Phips, Ellis, Zooph. t. 15, f. 9, 10.

Clio Borealis or C. Limacina, Scoresby, Arct. Reg. i. 544, ii. 55, 16, f. 10, from life.

Miquelonensis, Rang, *Ann. Sci. Nat.* 1825, v. 285, t. 7, f. 2 ;
Desh. in Lamk. Hist. ed. 2, vii. 425.

a—c. In spirits. Baffin's Bay. Presented by Colonel Sabine.
d—f. In spirits. Greenland. From Mr. Moller's collection.

2. CLIONE AUSTRALIS.

hy, of a rose colour; wings lanceolate; tail compressed, bi-
bed.

australis, Brug. *Ency. Meth.* n. 2. t. 75, f. 1, 2; *Roissi, Buffon*,
Moll. v. 69; *Lamk. Hist.* ed. 2, vii. 425; *Blainv. Malac. Moll.* t.
1, f. 1, 2.

India.

3. CLIONE CAUDATA.

à longue queue, *Eydoux & Souleyet, Voy. Bonite Moll.* t. 14,
17—21.

apt. Ross (*Antarctic Voy.* i. 169) mentions *Clio borealis* and
nauta arctica as abundant between lat. 63° and 64° south:
are probably distinct from the arctic species.

2. CLIODITA.

acacula not apparent; head separated from the trunk by a con-
striction.

lita (Cliodit), *Quoy & Gaim. Voy. de Freyc. Zool.* 413, 1824 ;
is, 1827, 1012; *Ann. Sci. Nat.* vi. 74, t. 2, f. 825; *Menke, Syn.*
2, 9, 1830.

sp., *Rang, Man.* 118, 1829; *Blainv. Malac.* 483; *Desh. in*
Lamk. Hist. ed. 2, vii. 426, 1836.

1. CLIODITA CADUCEUS.

y elongated, blunt behind; head very small, hooded.

lita caduceus, *Quoy & Gaim. Ann. Sci. Nat.* 1825, vi. 74, t. 2,
2; *Voy. Uranie*, t. 66; *Desh. in Lamk. Hist.* ed. 2, vii. 426.

Cape of Good Hope.

2. CLIODITA FUSIFORMIS.

y fusiform, blackish; wings somewhat triangular, transparent,
tended; posterior extremity acute; head very small, without
acacula.

Cliodita fusiformis, *Quoy & Gaim. Ann. Sci. Nat.* 1825, 75, t. 3, 4; *Voy. Uranie*, t. 66.

Clio fusiformis, *Desh. in Lamk. Hist.* ed. 2, vii. 427.

Hab. Cape of Good Hope.

3. CLIODITA PYRAMIDALIS.

Body elongate, pyramidal, white, pointed with brown; wings head rounded, two-lobed.

Clio pyramidalis, *Quoy & Gaim. Voy. Astrol.* ii. 371, t. 27, 1; *Desh. in Lamk. Hist.* ed. 2, vii. 426.

Hab. Amboina.—*Quoy & Gaim.*

FAM. VI. PNEUMODERMIDÆ.

Body fusiform. Head with arms furnished with pedicellate suckers. Wings 2, entire, with a central foot-like appendage placed at base of the head. Gills on the hinder part of the body.

Pneumodermidæ, *Gray, Syn. Brit. Mus.*, 1842, 86, 92; *Proc. Soc.* 1847, 204.

Pterobranchia, § c, *Gray, Med. Repos.* 235.

Pneumodermi, part, *D'Orb. Moll. Cuba*, i. 70.

Pneumodermes (Pneumoderma), *Ferussac, Fab. Syst.* 15, 1821.

Cliodinæ, part, *Menke, Syn.* 5, 1828.

Clioidæ, part, *Menke, Syn.* ed. 2, 9, 1830; *Wiegmann, Handb.* i. 517 (1842), ed. 2, 545.

Pneumodermite (Pneumodermite), *Latr. Fam. Nat.*

Pneumonodermoidæ, *Agassiz, Nomencl.*

Synopsis of the Genera.

1. PNEUMODERMON. Gills lobed, at the hinder part of the body.
2. SPONGIOBRANCHIA. Gills a prominent spongy ring, near the body.
3. TRICHOCYCLUS. Gills a ciliated ring, round the middle of body.
4. PELAGIA. Gills —? Body transparent, tubercular.

1. PNEUMODERMON.

* in a four-lobed leaf at the extremity of the body.

umodermon (Pneumoderme), *Cuvier, Ann. Mus.* 1804, iv. 228; *eg. Anim.* ii. 38, 1817, ed. 2, 1830; *Lamk. Phil. Zool.* 1809; *ist. A. S. V.* vi. 293, 1819, ed. 2, vii. 439; *Rang, Man.* 118.

umoderma, *Peron et Lesueur, Ann. du Mus.* 1810; *Gray, Lond. ed. Rep.* 1821; *Blainville, Dict. Sci. Nat.* xxxii. 274, 1824; *Malac.* 483; *Rafin. Anal. Nat.* 1815.

umoderma, *Agassiz.*

umoderum, *Verany, Cat. A. Invert.* 17, 1846.

umodermis, *Oken, Lehrb. Nat.*

umodermium, *Herrmannsen, Ind.* 309.

u, *Oken, Lehr. Zool.* 1816 (see *Blainv. Malac.* 55).

ua, "Oken" in *Deshayes, Ency. Meth.* ii. 7 (misprint).

1. PNEUMODERMON CUCULLATUM.

y oblong.

umoderma Capuchonne, *Peron et Lesueur, Ann. Mus.* 1810, xv.

umoderme, Pneumodermon, *Cuvier, Ann. Mus.* iv. 228, t. 59; *nat. Moll.; Regn. Anim.* ii. 330; *Blainv. Malac.* t. 46, f. 4; *esh. E. M.* iii. 802.

umodermede de Peron, *D'Orb. Voy. Amer. Merid.* 129; *Voy. unite Moll.* t. 14, f. 7, 16.

umoderma Peronii, *Lamk. Hist.* ed. 2, vii. 441; *Quoy et Gaim. Voy. Astrol.* t. 28, f. 1—6?

. Atlantic Ocean.

2. PNEUMODERMON RUBRUM.

y pupaform, elongated, fuscous; head red; wings very small, somewhat rounded.

umodermon ruber, *Quoy & Gaim. Voy. Astrol.* ii. 389, t. 20, f. 20; *Desh. in Lamk. Hist.* ed. 2, 441.

. Amboina.

3. PNEUMODERMON PELLUCIDUM.

Body cylindrical, turbinated, elongated, soft; head with very rounded wings.

Pneumodermon pellucidus, *Quoy & Gaim. Voy. Astrol.* ii. 328, f. 25.

Hab. Amboina.

4. PNEUMODERMON VIOLACEUM.

Body oblong, violet; suckers large, pedunculated, foot-like; appendages pear-shaped, elongate; fins rounded; whorls of gills 2-lobed, quadrangular.

Pneumodermon violaceum, *D'Orb. Voy. Am. Mer. Moll.* 12 f. 10—15.

Clio capensis, *Rang, Ann. Sci. Nat.* vi. 1825, 286, t. 7, *Desh. in Lamk. Hist. A. S. V.* ed. 2, vii. 426.

Hab. South Ocean.

2. SPONGIOBRANCHIA.

Body fusiform; wings 2, entire, with a foot-like appendage in a prominent spongy ring, on the end of the body.

Spongiobranchia, *D'Orb. Amer. Merid.* (1840), 132, t. 9, f. *Cuba*, i. 70, 1841.

Spongiobranchia, *D'Orb. Paleon. Franc. Cret.* ii. 1842; *Gr. Brit. Mus.* 1842, 92.

1. SPONGIOBRANCHIA AUSTRALIS.

Body elongate, violet-brown; head rounded; mouth whitish; appendages elongate, with two acute appendages; suckers 6, sessile, on a long appendage; foot acute; fins oblong, with whorls spotted.

Spongiobranchia australis, *D'Orb. Voy. Amer. Merid.* 132, 1, 6.

Hab. Atlantic Ocean, near Falkland Islands.

2. SPONGIOBRANCHIA ELONGATA.

Very much elongated, fusiform, pointed behind, brown-violet; head narrow; mouth white, with long appendages; fins round, white, small; gills white.

Spiogobranchea elongata, *D'Orb. Voy. Am. Mer. Moll.* 132, t. 9, 8, 9.

— Atlantic Ocean.

3. TRICHOCYCLUS.

Head produced, conical, with two lateral tentacles.—*Body* elongate; fins 2, oblong, lateral, with a lanceolate intermediate lobe; gills with a ciliated ring round the middle of the abdomen, and with a similar ring round the base of the head and on the hinder end of the body.

Trichocyclus, *Eschsch. Isis*, 1825, 735, t. 5, f. 4; *Menke, Syn.*, ed. 9; *Gray, Syn. B. M.* 1842, 86, 92; *Proc. Zool. Soc.* 1847, 14.

1. TRICHOCYCLUS DUMERILII.

Body oblong, cylindrical, truncate; fins broad, rounded. Length line.

Trichocyclus Dumerilii, *Eschsch. Isis*, 1825, 735.

— South Sea.

4. PELAGIA.

Body gelatinous, rough, transparent.—*Body* oval elongate, contracted in the middle; head indistinct, with two small tubercles; mouth hidden; fins 2, lateral, at the contraction of the body; tentacles at the base of the right fin; nerves very apparent.

Pelagia, *Quoy & Gaim. Voy. Astrol.* ii. 392, 1832, not *Peron & Lesueur*, 1809, nor *Lamx.* 1821; *Menke, Zeitsch. f. Malak.* 1844, 1.

1. PELAGIA ALBA.

Body elongate, fusiform, white-netted, rough; fins submedial, rounded, striated.

Pelagia alba, *Quoy & Gaim. Voy. Astrol.* 392, t. 27, f. 7—9.

FAM. VII. CYMODOCIDÆ.

Body divided into two parts. Wings 4, two on each side, at junction between the head and abdomen, with a foot-like pendage. Gills — ?

Cymodoceadæ, Gray, *Syn. Brit. Mus.* 1840 ; *Proc. Zool. Soc.* 204 ; *Agassiz, Nom.*

Pneumodernidæ, part, *D'Orb. Moll. Cuba*, i. 70, 1841 ; *Pal.* ii. 1842.

Cymodoceidæ, Gray, *Syn. B. M.* 1848, 88.

I. CYMODOCEA.

Character of the family.

Cymodocea, *D'Orb. Voy. Amer. Merid.* 133, t. 9, f. 16, 17
Cuba, i. 70, 1841 ; *Pal. Franc.* ii. 1842, not *R. A. Salisb.*

I. CYMODOCEA DIAPHANA.

Body elongate, diaphanous, translucent, showing the violet fins, upper pair broad, ovate, lower edge thickened, lower pair narrow, digitated ; medial appendage elongate, angular at the tip,

Cymodocea diaphana, *D'Orb. Voy. Amer. Merid.* 133, t. 9, f. 17.

Hab. Atlantic Ocean.

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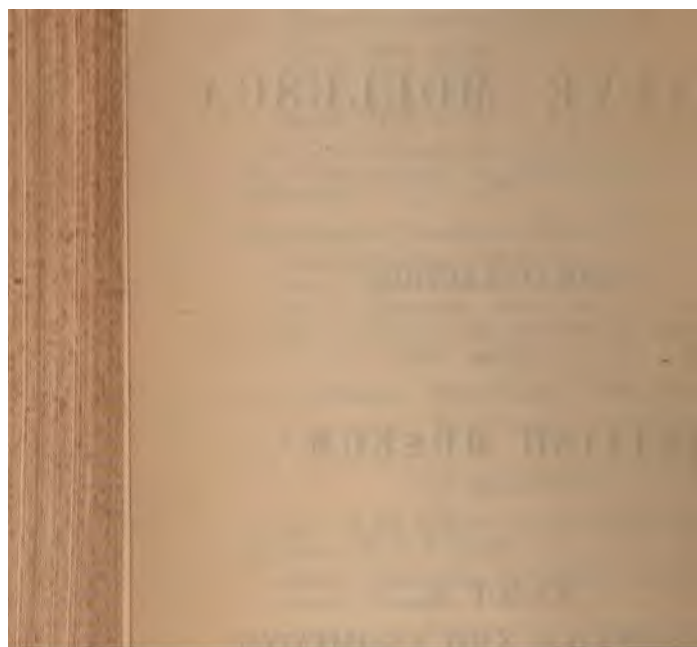
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CATALOGUE
OF THE
BIVALVE MOLLUSCA
IN
THE COLLECTION
OF THE
BRITISH MUSEUM.

PART I.
PLACENTADÆ AND ANOMIADÆ.

PRINTED BY ORDER OF THE TRUSTEES.
LONDON, 1850.



CATALOGUE OF
PLACENTADÆ & ANOMIADÆ.

FAMILY PLACENTADÆ.

entadæ, *Gray, Proc. Zool. Soc.* 1848, 201.

inidæ, *Gray, Syn. B. M.* 1842, 84, 92; *Hermann. Ind.* 279.

inoidæ, *Agassiz, Nomen. Zool.* 1847; *Hermann. Ind.* 279.

ana, *Lamk. Hist.* 2 ed. vii. 269.

æ, part *Ferus. Tab. Syst.* 40, 1821.

inidæ, part *Fleming, Brit. Anim.* 381, 1828.

nia, part *Hermannsen, Ind.* i. 61, 1816.

Lamarck describes three species of this genus, depending on the general outline and the waved or flat form of the shell, characters which are liable to considerable variations, as may be found on the inspection of any considerable number of specimens.

The hinge forms a more permanent character, and affords the means of dividing the species into two sections, and furnishes characters which separate them from each other. The right valve is the flattest, and bears the ridges of the hinge.

Dehemnitz gives the best character for the species, and has observed the character furnished by the hinge, which has been overlooked by Lamarck, and by all recent authors.

Synopsis of the Genera.

a. *Hinge-ridges linear, diverging, only slightly raised.*

LACUNA. Hinge-ridges of nearly equal length; muscular scar under centre of hinge.

LACENTA. Hinge-ridges unequal, hinder much the longest; muscular scars rather in front of middle of hinge.

b. *Hinge-ridge transverse, elevated on a broad and high*

3. HEMIPLACUNA. A small pit in front of the base of
ridge. *Fossil.*

a. *Hinge-ridges linear, diverging, only slightly rais*

1. PLACUNA.

Shell purplish, subopaque; hinge-ridges rapidly diverging
another at about the angle of 45 degrees, of nearly eq
Muscular scar under the centre of the hinge.

*Placuna, Solander, 1785, fide Chemn. Conch. viii. 116; Hu
Calonn. 1797; Lamk. Syst. 136, 1801.*

*Placuna, sp. Brug. E. M. t. 174, 175, 1792; Lamk. Hist
270.*

*Ephippium, Bolten, Mus. 1798, 2 ed. 116, 1819; Che
vii. 116.*

Placenta, β., Schumacher, N. Syst. 113, 1817.

*Placuna pectinoides, Lamk. Ency. Meth. t. 175, f. 1-4, i
of Plicatula, Desh. in Lamk. Hist. 2 ed. vii. 271.*

1. PLACUNA SELLA.

Shell flexuous, outline rather rhombic, being straight in
rather notched behind, rather thick, purple; the ridges of
not longer than they are separate from each other at the

Anomia Sella, Gmelin, S. N. 3345, 1788; Dillw. R. S.

Placuna Sella, Lamk. Hist. vii. 270, No. 1.

*Ephippium anglicanum maximum, Chemn. C. viii. t. 7
cop. E. M. t. 174, f. 1.*

Placenta Ephippium, Retz. 1788.

Placenta Sella, Gray, Proc. Zool. Soc. 1848, 113.

a, b. Adult. Purple, flexuous. China.

c. Nearly adult. Flexuous. China. Mus. Crache

d. Young. Single valve; flat, purplish. India.

by Dr. Horsfield.

e. N. W. Australia. Presented by the Earl of Derby

Var. β. *Shell* nearly flat, subquadrangular, notched b
behind.

2. PLACUNA PAPYRACEA.

Shell rather four-sided, nearly flat, thin, hyaline, white and purple-
varied.

una papyracea, Lamk. *Hist.* vii. n. 2.

ippium parvum, Chemn. *Conch.* viii. t. 79, f. 719, cop. E. M. 174, f. 2.

nia Sella junior, Dillw. *R. S.* i. 297.

enta papyracea, Gray, *Proc. Zool. Soc.* 1848.

a, b, c, d. Shell thin, slightly flexuous, more or less purple varied. China.

e. Single valve; flat, thin, brown, transparent edges. India. Presented by Dr. Horsfield.

f. Flat; front, and especially the hinder edge notched, thin. Pale purple spotted. Australia. Presented by the Earl of Derby.

Perhaps only the young of *P. Sella*.

3. PLACUNA LINCOLNII.

Shell flat, rather solid, subopaque, outline suborbicular, rounder in front and behind; ridges of the hinge elongate, longer than they separate from each other at the base.

enta Lincolnii, Gray, *P. Z. S.* 1848, 113; *Moll.* t. 3.

a. Australia; Mr. W. Davison. Presented by Abraham Lincoln, Esq.

This species is named after the late Mr. Abraham Lincoln, who first presented the specimen here described, and who was well known for his fondness for conchology and the liberality with which he allowed persons to use his extensive collection.

2 PLACENTA.

Shell semitransparent, flat, outline suborbicular; ridges of the hinge very gradually diverging from each other, the hinder ridge being the longest. Muscular scar rather in front of the middle of the hinge.

enta, Retzius, *Dissert.* 15, 1788 (not Klein); Schum. *N. S.* 1, 1817; Gray, *P. Z. S.* 1848.

una sp. Solander, 1785, fide Chemn. *Cab.* viii. 116; Brug. *E.* t. 174, 175, 1792; Lamk. *Hist.* 2 ed. vii. 270.

Anomia placenta, *Linn. S. N.* 1154; *Chemn. Conch.* v. 176, cop. E. M. t. 173, f. 2; *Dillw. R. S.* i. 297; *Linn. Zool.* t. 225, f. 60, t. 226, f. 61.

Placenta orbicularis, *Retz. Dissert.* 15, 1788; *Gray* 1848.

a. Adult. China.

b, c. Adult. China. Mus. Broderip.

d. Nearly adult. India. Presented by Dr. Horst.

e, f, g, h. Half grown. China.

i, j. Small, rather thicker. N. E. coast of Australia. Presented by the Earl of Derby.

b. *Hinge-ridge transverse, elevated on a broad, high, oblong*

3. HEMIPLACUNA.

Shell free; valves orbicular, flat, external surface minutely and radiately striated, especially on the edge of the particular scar in each valve single, nearly central, circular; valve flat, with a large, oblong, elevated, transverse cartilage, having a very small concavity in the middle in front of the cartilaged process representing the siphonia; the left valve rather more convex, with an obverse pit for the internal cartilage under the umbo.

Hemiplacuna, *G. B. Sowerby, MSS.*; *Gray, P. Zool.* 123.

Anomia or Placuna sp. *Desh. in Lamk. Hist.* 2 ed. vii. : 123.

is shell forms the passage between the genus *Anomia*, or rather *Ananomia*, and *Placuna*. It shows the gradual change which takes place between the three genera. In *Anomia* there are two muscles for the purpose of attaching itself to marine bodies, which form a plug which is free from the sinus of the shell. In *Placunia* there is only a single muscle to perform the same office, in the more typical species of this genus the plug itself is fixed to the surface of the shell, forming, as it were, part of its substance. In *Hemiplacuna* and *Placuna* there is no muscle or plug for attachment, and the shells are free; but in *Hemiplacuna* there is a rudimentary development of the sinus through which the plug is usually emitted, and the ligament which connects the shell is of the same form as that found in the genera *Anomia* and *Placunanomia*. The name for the genus is not consistent with the Linnæan case; but used rather than burthen the genus with two names.

1. HEMIPLACUNA ROZIERI.

Hemiplacuna, sp., *Rozière*, *Description d'Égypte, Minéralogie*, t. 11, f. 6.
Hemiplacuna Rozieri, *G. B. Sow. MSS.*; *Gray, P. Z. S.* 1849, p. 4.

Anomia? or *Placuna*? *Desh. in Lamk. Hist.* vii. 270, note.

a. Fossil. Shore of the Red Sea; Vallée de l'Égarement.
 Purchased of Mr. Sowerby.



FAMILY ANOMIADÆ.

Gray, Syn. B. M. 1840, 1842, 82, 92; *P. Z. S.* 1848, 1.

art, *Hermannsen, Ind. Gen.* i. 61, 1846.

, *Linn. S. N.* xii. 1150, &c., not *Fab. Colonna*, 1616.

Muller, Zool. Dan. Prod. 31, 1776; *Lamk. Syst.* 137,

Ferussac, Tabl. Syst. 1819.

art *Fleming, Brit. Anim.* 381, 394, 1828.

Echionoderma, Poli, Test. Sicil. i. 34, 1791, ii. 225,

p., *Klein, Ost.* 173, 1753.

Klein, Ost. 173, 1753.

ph. *Mus. Calonn.* 1797.

Bolten, Mus. 1798, 2 ed. 134, 1819.

gassiz.

European species of *Anomiadæ* have been much multiplied, the other hand the exotic species have been almost neglected.

The substance, surface and colour of the shell, which have been used to distinguish the species, were suspected by Montague to be different on the age of the specimens and the locality in which they happened to be found, and further researches have confirmed the accuracy of these observations.

Synopsis of the Genera.

ANOMIA. Shell not eared; upper valve with two subcardinal scars; the anterior upper lobe of the notch agglutinated to the cardinal edge; plug shelly at the top and near the middle, to which it is attached, and with horny longitudinal ribs below and internally.

2. **ANOMIA.** Shell not eared; upper valve with three subcentral muscular scars; the anterior upper lobe of the notch separated from the cardinal edge; the plug entirely shelly, and free from the edge of the notch.
3. **LIMANOMIA.** Shell eared on each side of the umbo; sinus up near umbo. Muscular scars ? Fossil.

1. PLACUNANOMIA.

Upper or dorsal valve with two subcentral muscular scars; per scar radiately veined. Byssal notch distinct, converted into a hole by the upper part of the anterior lobe of the notch being soldered to and forming part of the cardinal edge: the notch angular, gradually enlarging in size; the apex and outer margin next to the body to which it is attached, calcareous, longitudinally striated; the inner surface covered with horny, longi-parallel laminæ, and more or less agglutinated to the edge of the notch.

Anomia, *B.*, *Schumacher, Essai*, 1817.

Placunanomia, *Broderip, Proc. Zool. Soc.* 1832, 29; *Müll.* 176; *Desh. in Lamk. Hist.* vii. 269; *Gray, P. Z. Sc.* 119.

Pododesmus (decipiens), *Philippi, Wiegmann, Arch.* i. 385, *Anomia*, pars, *Blainv. Man. Mol.*; *Montague; Forbes & Harmer, Ostrea*, sp. *Da Costa; Montague.*

Placunanomia, *D'Orb. Amer. Mérid.*

Placunomia, *Swains. Malac.* 39, 1840.

Mr. Broderip, who established this genus, does not observe the character furnished by the muscular impressions, or the lobe of the notch: he merely says, "Impressio muscularis in utraque subcentralis. In valvâ superiore organi adhesionis impressio addita." And further, that "the organ of adhesion, which is bony character (for it is more bone than shell) resembles *Anomia*, does not perforate the lower valve directly, but is situated between the laminæ of the internal surface of the lower valve, above the muscular impression and below the hinge, and passes over the hinge, and forms an external, somewhat longitudinal, superficial fimbria, which is narrowest at the hinge margin, and which entirely fills to a level with the surrounding surface."

This form is produced by the gradual increase of the size of the plug and the simultaneous increase of the size of the shell.

Some have considered the "plug" or "stopper" of *Anomia* as a third valve, which is evidently a mistake. *Philippi (Mollusca*

considers it as the ossification of the tendon of the adductor s. Mr. Broderip, in the passage quoted, regards it as a *bone*.

Dieffenbach's Travels Mr. Gray has remarked: "The plug is entirely only a modification of the kind of laminar beard formed at the end of the foot of the arcs (*arcæ*); for, like it, it is formed of thin, parallel, erect, longitudinal horny laminæ, placed side by side, extending from the apex to the margin, and it is on these that the calcareous matter is deposited when the attachment is its shelly substance. The same structure is to be observed in the plug of the European *Anomia Ehippium (striata)*." — *Voy. Zeeland*, ii. 261.

Mrs. Forbes and Hanley compare it to the byssus of *Pecten*, and predict that when the very young *Anomiæ* have been observed, they will be found to be attached by threads, like that genus (*Brit.*

The plug of a very small specimen of the genus is laminar, and at of the adult shell.

Philippi, when describing *Pododesmus*, appears to have observed only the upper of the two muscular scars, for he gives as the characteristic character, "*Impressio muscularis unica, ovata*," and he only shows the larger upper one on the plate.

The upper scar, which is usually of a larger size, and has its surface covered with radiating veins, while the lower is generally smooth, appears to be the one which gives rise to the muscle attached to the inner surface of the plug.

A close examination of the upper valve of a large series of specimens of *Placunanomia patelliformis* has shown that the position of the muscle is liable to a slight variation; in by far the larger number of specimens the small lower muscle is quite close to and continuous with the scar of the upper larger muscle, but in a few specimens it is separated from the upper larger one by a small interval of space. Hence probably the three West Indian species of the genus may prove, when a larger series of specimens have been collected and compared, only varieties of the same species.

Shell plicately folded. Perforation of lower valve small, firmly embracing the plug. PLACUNANOMIA.

PLACUNANOMIA CUMINGII.

Shell depressed; edge of the valves with three or four large anfracts.

Placunanomia Cumingii, Broderip, *Proc. Zool. Soc.* 1832, 29; *Genera*, t. ; *Manual*, f. 189-191; Gray, *P. Z. Soc.* 1849,

Central America; Gulf of Dulce, Province of Costa Rica. Mr. Cuming's collection.

** *Shell ovate, radiately ribbed; edge not plicated. Perch of lower valve moderate, firmly embracing and inclosing the American.* **PODODESMUS.**

Pododesmus, Philippi, Wiegmann, Arch. i. 387, 1837; Gray, 1849, 121.

2. PLACUNANOMIA RUDIS.

White; disk brown; laminae smooth.

Upper valve with two rounded, separate scars of near size, the hinder one rather more transverse.

Placunanomia rudis, Broderip, Proc. Zool. Soc. 1834, 2 P. Z. S. 1849, 121.

Pododesmus decipiens, Philippi, Wiegmann, Arch. i. 1837 9, f. 1 (one scar left out).

Hab. East Indies? Broderip. Mus. Cuming. Hawaii.

3. PLACUNANOMIA FOLIATA.

White; laminae smooth, with very slight, distant, radial disk purple brown.

Upper valve with two nearly united scars; the upper large rather elongated; lower small, rounded.

Placunanomia foliata, Broderip, Proc. Zool. Soc. 1834, 2 P. Z. S. 1849, 121.

P. echinata, Broderip, Proc. Zool. Soc. 1834, 2.

"*P. pectinata, Brod.*" in Mus. Cuming.

a. Upper valve of young. St. Vincent. Jamaica. In Rev. L. Guilding's collection.

b, c, d, e. Perfect. On Spondylus. West Indies. Broderip.

The specimen of *Placunanomia echinata*, from the island of Nevis, in Mr. Cuming's collection, appears to be only an immature specimen of this species. Mr. Broderip doubted if this might be the case, when he described it.

4. PLACUNANOMIA ABNORMALIS.

White, radiated, ribbed. Upper valve with two scars, one on the lower hinder edge; the upper one rather the largest.

"*Placunanomia abnormalis, Sow.*" in Brit. Mus.; *Gray, P. 1849, 121.*

a. West Indies.

These three species are very nearly related to each other, and if not for the difference in the position of the scars, might be taken for one. The first is white, and the two last have a brownish spot on the internal surface of the dorsal valve.

Shell ovate, not plicated; radiately ribbed. Perforation of lower valve large, only slightly embracing the large thin plug.
MONIA.

monia, Gray, *P. Z. S.* 1849, 121.

† *American.*

5. PLACUNANOMIA MACROCHISMA.

Upper valve with two scars, partly confluent on the lower hinder side; the upper scar largest. Lower valve with an oval, oblique notch, narrowed behind, rather in front of the plug.

monia macrochisma, *Deshayes, Rev. Cuvier, Zool.* 1839, 359; *Mag. de Zool.* 1841, t. 34.

monia Broderipii, *Gray, B. M.* 1842, and *Mus. Cuming.*

monia macrochisma, *Gray, P. Z. S.* 1849, 121.

a, b. Kamtschatka.

M. Deshayes observes: "On sait que dans le plus grand nombre d'Anomies la perforation se réduit ordinairement en un simple trou, parce que les deux parties du bord supérieur ne se rejoignent jamais. Ici au contraire le trou est complète, et la valve parfaitement perforée." This character is common to all the species of *Placunanomia*. M. Deshayes does not figure nor describe the plug. The habitat, "Cagayan, Luçon," assigned to this species by Mr. G. B. Sowerby must be a mistake. It is the specimen referred to by Mr. Broderip in the observations on the genus in the Proceedings of the Zoological Society.

6. PLACUNANOMIA CEPIO.

Scars two, far apart; upper very large, ovate, longitudinal, central; lower smaller, oblong, oblique, rather behind the upper.

Plug large, flat, broad. Notch large, wide.

monia Cepio, *Gray, P. Z. S.* 1849, 121.

a. Adult. California. Presented by Lady Katherine Wigram.

7. PLACUNANOMIA ALOPE.

Upper valve flat, smooth, radiately striated. Scars two, well separated, rounded, equal-sized.

Placunanomia alope, *Gray, P. Z. S.* 1849, 122.

a, b. California. Two upper valves. Presented by Ladytherine Wigram.

†† *European.*

8. PLACUNANOMIA PATELLIFORMIS.

Shell suborbicular, convex or quite flat, radiately striated; disk greenish. Apex rather within the dorsal margin.

The upper muscular scar of the dorsal valve very large, ob the lower one small, roundish, on the lower part of the hinder gin of the upper one.

The peduncle of the cartilage with a triangular cavity in under the tip, and continued in an oblong, rib-like ridge to the centre of the shell.

Anomia patelliformis, *Linn. S. N.* 1152; *Nor. Act. Upsal.* i. 42, t. 5, f. 6, 7; *Retzius, Nor. Gen. Test.* ii.; *Sars, fid Cuming; Loven, Moll. Scand.* 30; *Forbes & Hanley, Brit* 334, t. 56; *Wood, Index Test.* t. 10, f. 10, not *Chemn.*

Squama Magna, Chemn. Conch. vii. 87, t. 77, f. 697.

Anomia Squama, Gmelin, S. N.; *Schumacher, Essai.*

Ostreum striatum, Da Costa, Brit. Conch. 162, t. 11, f. 4.

Anomia undulatum striata, &c., Chemn. Conch. viii. 8, t. 77,

Anomia undulata, Gmelin, Syst. Nat. i. 3346; *Mont. Tes* 157, t. 4, f. 6; *Maton & Racket, Trans. Linn. Soc.* vii. *Turton, Conch. Dict.* 4, *Bivalves*, 230, t. 18, f. 8, 9; *D* S. i. 289; *Wood, Index, Test.* t. 11, f. 9.

Ostrea striata, Pulteney in Hist. Dorset, 36; *Donovan, B.* ii. t. 45; *Mont. T. B.* 153, 580.

Anomia striata, Loven, Index Moll. Scand. 29; *Forbes & Brit. Moll.* 336, t. 55, f. 1, 6, t. 53, f. 6.

Placunanomia patelliformis, Gray, P. Z. S. 1849, 122.

a, b, c, d. Adult and young. British shores. *Mus. M* e, f. Coast of Devonshire.

This species is easily known from the other European of the family by being generally thicker and regularly radiated, and greenish; but the number and position of the scars at once separate it from all the multifiform varieties *species*. Some authors, overlooking the latter character, are inclined to regard it as a mere variety of *Anomia ephippium*.

†† *Australian.*

UNANOMIA ZEALANDICA.

ar, white, smooth; upper valve with distant, radiating
ernally dark green.

ve with two confluent scars; upper oblong, longitudi-
ther small and more transverse.

landica, *Gray, in Dieffenbach's New Zealand*, ii. 261,

a Zealandica, *Gray, P. Z. S.* 1849, 123.

t specimen. New Zealand: on the inside of mussel

. Presented by Dr. Stanger.

CUNANOMIA IONE.

e, laminar; edge of the laminæ with small, slender,
cesses; internally green.

scular scars small, round, on the lower hinder edge of
e; sinus or perforations large.

a ione, *Gray, P. Z. S.* 1849, 123.

gle dorsal valve. On rocks, Australian Seas. Van
en's Land. Presented by Dr. A. Sinclair.

CUNANOMIA COLON.

er valve) flat, with rather irregular, flat, radiating ribs;
spotted; upper valve with two separate scars; the
long, longitudinal, the lower one much smaller, cir-

a colon, *Gray, P. Z. S.* 1849, 123.

. P
g's collection (no. 10). Mr. Humphrey's collection
r valve of a rather young shell.

2. ANOMIA.

with three subcentral muscular scars; byssal notch
be upper part of the anterior lobe of the notch separate
often partially overlapping the front of the cardinal
plug thick, elongate, entirely shelly, and quite free
dge of the notch.

Anomia, Müller, 1776; Retzius, 1788; Lamk. 1801; Megal.
1811; Gray, P. Z. S. 1849, 114.

Anomia, pars, Linn. S. N.

Anomia, A. Schumach. Essai, 1817.

Echion and Echinoderma, sp. Poli, Sicil. Test. i. 34, 1791,
255, 1795.

Fenestrella, Bolten, Mus. 1798, 2 ed. 134, 1819.

Lampades, pars, Gevers, 1787.

"Enigma, Koch," according to the cabinet of Mr. Cuming.

It is by no means certain that all the species here indicated are distinct, or are to be distinguished by the characters assigned to them, unassisted by the country which they inhabit: but they are distinct, and it appears to be desirable that they should be distinguished until we have the means of more completely investigating them, and of examining and comparing the animals which form them.

* The upper scar in dorsal valve large; two lower scars small and nearly under the upper one. Shell suborbicular. ANOMIA.

Anomia, Gray, Proc. Zool. Soc. 1849, 114.

† European.

1. ANOMIA EPHIPIUM.

Shell white, yellow, rosy or red brown; upper valve radiated; internally pearly. The upper scar large, oblong, the two others rather smaller, subequal, one above the other; the lowest of the two rather more behind. Plug large, broad, short; the sinus in dorsal valve large.

Anomia Ehippium, Linn. S. N. 1150; Chemn. viii. 82, t. 76, 692, 693; Mont. T. B. 155; Lamk. Syst. 138; Dilw. R. S. 286; Poli, Test. ii. 186, t. 20, f. 9, 10; Lamk. Hist. vi. 22, ed. vii. 273, n. 1; Gray, P. Z. S. 1849, 116.

Anomia Tunica Cepa, Dacosta, B. Conch. 165, t. 11, f. 3.

Anomia cepa, Linn. S. N. 1151; Chemn. viii. 85, t. 76, f. 695; Dilw. R. S. i. 287; Poli, Test. ii. 182, t. 30, f. 1. Lamk. H. v. 227, 2 ed. vii. 274, n. 3.

Anomia violacea, Brug. Enc. Meth. 71.

Anomia plicata, Brocch. Conch. 665, t. 16, f. 9.

Anomia scabrella, Philippi, Sicil. i. 92, ii. 65, t. 18, f. 1.

Anomia polymorpha, Philippi, Sicil. i. 92, ii. 65.

Anomia costata, Brocchi, 463, t. 10, f. 9.

- ia sulcata, *Poli, Test. Sicil.* t. 30, f. 12; *Brocch.* t. 10, f. 2.
 ia radiata, *Brocchi*, t. 10, f. 10.
 ia pectiniformis, *Poli, Sicil.* t. 30, f. 13, on a *Pecten*; *Philippi, Sicil.* ii. 63, t. 18, f. 3.
 ia margaritacea, *Poli, Sicil.* t. 30, f. 11; *Philippi, Sicil.* ii.
 ia electrica, *Linn. S. N.* 1151; *Chemn. Conch.* viii. t. 76, f. ; *Lamk. Hist.* vi. 227, 2 ed. vii. 274, n. 4.
 ia squamula, *Linn. S. N.* 1151; *Chemn. Conch.* viii. 86, t. f. 696; *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 8.
 ia punctata, *Chemn. Conch.* viii. 88, t. 77, f. 698; *Dillw. R.* i. 288.
 ia aculeata, *Müller, Z. D. Prod.* 249; *Chemn.* viii. 92, t. 77, 02; *Mont. T. B.* 157, t. 4, f. 5; *Dillw. R. S.* i. 288.
 ia scabra, *Solander MSS.* fide *Dillwoyn.*
 ia lens, *Lamk. Hist.* vi. 228, 2 ed. vii. 276, n. 9.
 ia aspera, *Philippi, Sicil.* ii. 65, t. 18, f. 4.
 ia elegans, *Philippi, Sicil.* ii. 65, t. 18, f. 2.
 ia patelliformis, *Chemn. C.* viii. 89, t. 77, f. 700; *Dillw. R.* . 290.
 ia striatula, *Bruguière, Enc. Meth.* 74.
 ia bifida, *Chemn. Conch.* viii. 79, t. 76, f. 689, 690; *Dillw. S.* 290.
 ia cylindrica, *Gmelin, S. N.* 3349; *Dillw. R. S.* i. 291.
 ia cymbiformis, *Maton & Racket, Linn. Trans.* viii. 104, t. 3; *Mont. Supp.* 64.
 ia coronata, *Bean, Mag. N. Hist.*
 ia patellaris, *Lamk. Hist.* 2 ed. vii. 273, n. 2; *Deles. Recueil,* 7, f. 3.
 ia pyriformis, *Lamk. Hist.* vi. 227, 2 ed. vii. 175, n. 5; *Deles.* t. 17, f. 4.
 ia fornicata, *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 6 = *Enc.* t. 170, f. 45.
 ia membranacea, *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 7
Enc. Meth. t. 170, f. 1-3?
 ia cucullata, *Bruguière, E. M.* 70.
 , b, c, d. Adult. Europe.
 Adult. From back of *Pecten*. Lower valve radiated. Europe.
 , g, h. Small, very convex. On *Cerithium vulgatum*. Malta. Presented by Miss Emilie Attersoll.
 Small, very convex, obliquely costated from a costated shell. Malta. Presented by Miss E. Attersoll.
 Shell thick, radiately striated. Coast of Africa. Presented by Capt. Owen, R.N.

†† *Asiatic.*2. *ANOMIA AMABÆUS*,

Flat, white, smooth; internally pearly, with a very thin
Upper scar moderate; lower scars two, rather large (nearly
large as the upper one), confluent into a broad, oblong scar.

Anomia amabæus, *Gray*, *P. Z. S.* 1849, 113.

Hab. Philippines, Island Buraas (Jackass Island); on sand,
ten fathoms. Mr. Cuming's collection.

3. *ANOMIA CYTÆUM*.

Shell suborbicular, smooth; internally reddish. Upper
muscular scars very large, subcordate; lower two, suborbicular, smaller,
equal-sized; the upper in the notch of the upper one; the
hinder close to lower hinder edge of the upper one; sinus in
valve large.

Anomia cytæum, *Gray*, *P. Z. S.* 1849, 115.

Hab. China, River Zangtze Keang; *Fortune*. Mr. Cuming's
collection. Two specimens.

4. *ANOMIA DRYAS*.

Suborbicular, flat, white; upper valve internally and radially
lined. Upper scar large, oblong; lower scars two, small, nearly
confluent, placed side by side nearly on the same line.

Anomia dryas, *Gray*, *P. Z. S.* 1849, 115.

Hab. Singapore. On dead shells, ten fathoms, in corals
and gravel. One small specimen. Mr. Cuming's collection.

5. *ANOMIA ACHÆUS*.

Shell purplish, smooth; umbo rather acute; upper valve
rather convex; inside purplish white. Upper muscular scar
lower edge slightly arched; lower scars two, small, nearly
equal-sized; the hinder rather lower than the other.

Anomia achæus, *Gray*, *P. Z. S.* 1849, 115.

a, b, c, d, e, f. Dorsal valves only. Indian Ocean, Karakoram
mouth of the Indus. Presented by Major Baker.

Major Baker sent to the Museum a very large series of
dorsal valves of this species, collected at Kurachee. They

y variable in form, surface, colour and thickness, and they offer considerable variety in the disposition of the muscular

In all the upper scar is largest, but variable in shape round to broad cordate. In most the two lower scars are closer, but separate, and nearly on the same line. In others the upper scar is rather lower than the middle one, and in a few (four) specimens, which are mostly produced posteriorly, the lower scar is lower; that is to say, in some the upper edge is parallel with the lower edge of the middle one. In one specimen the two lower scars are on the same line, and are confluent together, forming a scar about the same size as the upper scar, yet showing that the upper scar is formed by two muscles; so that this valve cannot be compared with a *Placunanomia*.

Examination of this series of specimens from the same locality shows, that though the comparative size and disposition of the scars may furnish good characters for the distinction of the species, yet they are not to be relied on.

ANOMIA BELESIS.

Color white or red; the upper part of the centre of the dorsal valve externally radiately striated; apex acute, at some distance from the dorsal edge. Upper valve with three separate scars, the upper one very large, oblong, and rather transverse; two lower ones very small, nearly equal-sized, and nearly on the same line.

A. belesis, Gray, *P. Z. S.* 1849, 116, *Moll.* t. 4, f. 3, 4.

White, rather thick. Indian Ocean. Presented by General Hardwicke.

A. c. Red. Indian Ocean. Presented by General Hardwicke. Specimen figured *P. Z. S.* 1849, t. 4, f. 3, 4.

†† *American.*

ANOMIA ACONTES.

Color brownish white, suborbicular, flat, smooth; disk pearly. Upper valve moderate, subcircular; lower scars smaller, distant, circular, the upper one nearly on a line with the lower edge of the middle one.

A. acontes, Gray, *P. Z. S.* 1849, 116.

Jamaica. One small specimen in Mr. Cuming's collection.

8. ANOMIA FIDENAS.

White, pearly, thin, flat, smooth externally, pearly within, thick white disk. Upper scar large, elongate, arched below; scars two, small, circular, far apart, the lower one considerably below the other.

Anomia fidenas, Gray, *P. Z. S.* 1849, 117.

Hab. America, west coast. Panama; on *Pinna* at low Mus. Cuming, no. 2; three specimens.

9. ANOMIA ADAMAS.

Red, thick, with numerous, indistinct, radiating ribs, a thick white disk. Upper muscular scar oblong, arched below; lower scar oblong, rather smaller, nearly same size, rather close together, but separate, the hinder one rather than the other.

Anomia adamas, Gray, *P. Z. S.* 1849, 117.

Hab. Galapagos; Lord Hood's Island, attached to *Avicula garitifera* at nine fathoms. Mus. Cuming, no. 5; three specimens.

10. ANOMIA PACILUS.

Red, with distinct radiating ribs; internally reddish pearly, a thick white disk. Upper muscular scar oblong, broad, edge arched; lower scars two, rather smaller, nearly same size, rather close together, but separate, the hinder one rather than the other.

Anomia pacilus, Gray, *P. Z. S.* 1849, 117.

Hab. Peru; Tumbes. Dredged from five fathoms in Mus. Cuming, no. 9.

11. ANOMIA LARBAS.

Shell white, smooth, lower valve pale green. Upper scar large; lower scars two, nearly as large as, and close to, upper one, nearly equal, and nearly in a line.

Anomia larbas, Gray, *P. Z. S.* 1849, 117.

Hab. Coast of Peru, Payta. Mus. Cuming.

OMIA ALECTUS.

Upper valves convex, reddish, internally pearly; lower internally green. Upper scar large, oblong; lower large, rather smaller than the upper one, close together, distant; the lowest one the largest.

Mus, *Gray, P. Z. S.* 1849, 117.

Dorsal valve. Peru, Bay of Guayaquil. Presented by R. S. S. Andrews, Esq.

Ventral valve, perfect. N. coast of America. Presented by Capt. Edward Belcher, C.B., R.N.

OMIA HAMILLUS.

Thin, sinuous. Dorsal valve with a triangular, white, central disk. Upper scar large, roundish; lower scars two, close together, nearly equal-sized, small, and nearly on the same level.

Mus, *Gray, P. Z. S.* 1849, 117.

Presented by Capt. Edward Belcher, C.B., R.N. Mus. Cuming, no. 6.

OMIA LAMPE.

Single valves, yellowish green, radiately costated; internally green. Upper scar large, squareish; lower two rather smaller, sub-parallel, close together and to the upper scar, and nearly on the same level. Lower valve very large.

Mus, *Gray, P. Z. S.* 1849, 117.

Single valves, yellow and red. California. Presented by Mrs. Katherine Wigram.

††† *Fossil.*

OMIA TENUICOSTRIATA.

Variable in shape, regularly radiately striated; sinus very large, ovate. Dorsal valve with three nearly equal scars very close together; the two lower small, close together side by side, just on the lower margin of the dorsal valve, the hinder one being rather behind the hinder edge of the dorsal valve.

lamialis, Lamk. Hist. An. sans Vert. vi. 220.

lamialis, DeFrance, Dict. Sci. Nat. ii.

Anomia striatula, *Desh. Coq. Foss. Paris*, t. 65, f. 7, 11.

Anomia tenuistriata, *Desh. Coq. Foss. Paris*, i. 377, in *Lamk. Hist. vii.*; *Gray, P. Z. S.* 1849, 118.

a, b, c, d, e, &c. Fossil, Grignon. From M. Deshayes collection.

The very characteristic scars of the dorsal valve are well shown in M. Deshayes' plate above referred to, but not mentioned in the description.

** *Upper scar of dorsal valves large; two lower scars smaller, far behind the upper one. Shell oblong, transverse. ÆNIGMA. Koch & Enigma, Koch, MSS.; Gray, P. Z. S.* 1849, 118.

16. ANOMIA ÆNIGMATICA.

Shell elongate, transverse, oblong, purple or yellowish, with a purple disk; apex acute, considerably within the dorsal edge.

The upper scar large, suborbicular, subcentral; lower scars two, much more posterior, small, equal-sized, and nearly confluent.

Tellina ænigmatica, *Chemn. Conch.* xi. t. 199, f. 1949, 1950.

Anomia rosea, *Gray, Ann. Philos.* 1825, 5.

Anomia ænigmatica, *Alton in Wiegmann, Arch.* 1837, *Verz.* 21; *Reeve, Nomen. Conch.; Gray, P. Z. S.* 1849, 118.

Hab. Indian Ocean.

Var. 1. Elongate, purplish brown, smooth, flat. *Chemn. l. c.* f. 1949, 1950.

Hab. Indian Ocean, on the surface of flat wooden piles, &c.

a, b. Philippines. From Mr. Cuming's collection.

Var. 2. Like former, but more elongated, and the sides folded together, from being on a concave surface.

Anomia naviformis, *Jonas; fide Mus. Cuming.*

Ænigma, sp. *Koch; fide Mus. Cuming.*

c, d. Bengal, on wood.

Var. 3. Flat, smooth; like *Var. 1.* but yellow, with a dark purple brown, transverse ray.

e, f. Philippines. From Mr. Cuming's collection.

Var. 4. Flat, purple; like *Var. 1.* but often more ovate, and with a few radiating ribs, ending in projections, making the edge sinuous.

g. Singapore, on piles of wood forming the wharves. From Mr. Argent's collection.

Two upper scars small; lower one large. Shell suborbicular; sinus small. PATRO.

Gray, *Proc. Zool. Soc.* 1849, 118.

17. ANOMIA ELYROS.

White, lamellar, closely radiately striated. The disk of the upper valve with three separate subcircular scars; the two upper scars subequal, one under the other; the lower one large, nearly central, subcentral. Notch in lower valve very small. Plug small, gate, subcylindrical; the notch small, with reflexed edges.

Anomia elyros, Gray, *P. Z. S.* 1849, 118; *Moll. t.* 4, f. 1, 2.

a, b, c, d. Adult, thick; disk white, thick. Port Essington. Presented by the Earl of Derby.

e, f. Adult. Port Essington. Presented by J. B. Jukes, Esq.

g. Adult. Depuch Island. Presented by Capt. Wickham.

h. Adult, thin; disk thin. Port Essington. Presented by Capt. Sir Everard Home, Bart., R.N.

The small size of the upper scars in this species probably depends on the small size and elongated form of the plug. The other species which have the upper scar the largest, have at the same time a larger notch and a broader plug.

3. LIMANOMIA.

Adherent, longitudinal, subequivalve, inequilateral; *umbo* curved to the right, regularly curved on each side, cardinal edge transverse, oblique, inclined to the right; valves thin near *umbo*, slightly radiately ribbed; lower valve with a subtriangular notch near the *umbo*, under the ear; cartilage ridge ?
 subcircular scars ? Plug triangular, calcareous, with a narrow, scalariform impression.

Limanomia, Bouchard, *Chantereaux MSS.* (in letter) 1850.

This fossil genus, which has the external form of a *Lima* and the general habit of *Anomia*, has hitherto only been found in the Devonian limestone.

* *Shells adherent, sometimes aggregate.*

1. LIMANOMIA GRAYIANA.

Shell ovate, longitudinal, radiated and dichotomously ribbed; ribs of upper valve strong, under far apart, of lower valve broad and near together.

Limanomia Grayiana, *Bouchard MSS. & figure.*

Fossil. Devonian limestone, Boulogne.

See also *Limanomia multicosta*, and *L. Lineolaria*.

** *Shell isolated, attached to Terebratulula or Spirifer.*

2. LIMANOMIA GIBBA.

Shell orbicular, gibbous; upper valve very concave, cancellated concentrically ribbed, and finely undulately radiated; lower smooth, concave in the centre.

Limanomia gibba, *Bouchard MSS.*

Fossil. Devonian limestone, Boulogne.

CATALOGUE
OF THE
M O L L U S C A
IN
THE COLLECTION
OF THE
BRITISH MUSEUM.

PART IV.
BRACHIOPODA ANCYLOPODA,
OR
LAMP SHELLS.

LONDON:
PRINTED BY ORDER OF THE TRUSTEES.
1853.



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P R E F A C E.

THE chief objects in forming the present Synoptical Catalogue have been, to exhibit at one view a complete list of all the specimens of **BRACHIOPODOUS MOLLUSCA** in the **British Museum Collection**, and to furnish such an account of the species known to exist in other collections, but which are at this time desiderata in the **British Museum**, as the materials at hand would permit me to compile, in order to enable travellers, collectors, and others, to assist in completing the national collection.

For this purpose, short descriptions have been given of all the genera and species of recent Brachiopoda now known to exist in the different museums and private collections, and of the better-known fossil species of the various fami-

lies. At the end of each description is added the country, or strata, and other peculiarities of each species mentioned.

Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted.

Reference has also been made to the works in which the genera and species appear to have been first described or noticed.

Mr. S. P. WOODWARD has kindly assisted in the preparation of the Catalogue, especially as regards the fossil species, and in drawing the illustrations, which have been engraved by MISS ANN WATERHOUSE of the School of Design.

JOHN EDWARD GRAY.

January 11th, 1853.

CATALOGUE
OF
BRACHIOPODA OR LAMP-SHELLS
IN
THE BRITISH MUSEUM.

Class II. BRACHIOPODA.

Shell inequivalve, equilateral, attached by a muscular peduncle, by the surface of one valve, or free; *valves* applied to the dorsal and ventral sides of the animal, united by muscles and finely articulated by teeth; *dorsal valve** usually smallest, always smaller, furnished internally with sockets for the hinge-teeth, and with shelly processes † for the support of the animal; *ventral valve* usually largest, and with its umbo produced and perforated for the passage of the peduncle, frequently attached by its outer surface, and generally provided internally with two prominent teeth; *periostracum* thick, sometimes developed into concentric shells.

Animal furnished with elongated labial appendages, or *oral arms*, which are free or united by membrane and variously folded,

* What is here called the *dorsal valve* has often been called the *lower valve*, being usually below when the animal is in its natural position attached to marine bodies; but it has been found to cover the back of the animal.

† Sometimes termed an "internal skeleton" or "apophyseary stem."

being usually spiral, and having their outer margin fringed with *cirri*; mantle-lobes closely applied to the valves, fringed with horny *setæ*, and furnished with large branching veins; digestive organs occupying a small space near the umbones, separated from a strong membrane from the general cavity of the shell in which the cirrated arms are expanded; respiration performed by vessels of the mantle; circulation effected by two hearts, each having an auricle and a ventricle; sexes united?; ova developed in vascular sinuses, or in the large veins.

Habit marine, ranging from low water to 100 fathoms; in temperate and seas (*Woodward MS.*).

Ostreacia; Subfam. Placunia, part., *Rafinesque, Anal.* 148, 1815.
Poleteria; Brachiopea, *Rafinesque, Anal.* 148, 1815.

Brachiopoda, *Cuvier, Ann. du Mus.* i. 44, & in *Roissy, Moll.* 460, 1805.

Dumeril, Trait. élém. 1806.

Lamk. Phil. Zool. 1809, 317.

Latr. Fam. Nat. 1825.

Schweigg. Naturg. 689, 1820.

Rang, Man. 257, 1829.

Flem. Brit. An. 1828, 256, 377.

Menke, Syn. i. 95, 1836.

Owen, Trans. Zool. Soc. i. 22.

Gray, Syn. B. M. 1840; 1842, 85; *Proc. Zool. Soc.* 1842, 202; *Ann. Nat. Hist.* 2nd ser. ii. 435, 1848.

Anomia, part., *Linn. S. Nat.*

Criopus or Criopoderma, *Poli, Test. Sicil.* 1792.

Brachiopoda, *Risso, Hist.* iv. 1826.

Swains. Malac. 1840.

Spirobrachiophora, *Gray, Med. Repos.* 1821, 238.

Lingulacea, *Blainv. Dict. Sc. Nat.* x. 1818.

Acephalophora palliobranchia, *Blainville, Prodr.* 1814.

Acephala Brachiopoda, *Anton, Verz. Conch.* 12, 1839.

Acephala Palliobranchiata or Brachiopoda, *Forbes & Harmer, Brit. Moll.* ii. 339.

Conchifères monomyaires, Sect. III. (Les Rudistes et Les Brachiopodes), *Lamk. Hist.* vi. 229.

Conchifères Brachiopodes, *Lamk. Hist.* vi. 241.

Mol. acephala testacea monomyaria (monomyaires), part., *Lamk. Hist.* vi. 1, 2nd ed. vii. 1.

Acephales testacés, Brachiopodes (and Ostracées, part.), *Lamk. Ext. du Cours*, 104, 1812.

Rang, Man. Moll. 257.

Palliobranchiata or Palliobranches, *Blainv. Dict. Sc. Nat.* 1824.

King, Ann. & Mag. N. H. xviii. 1846.

valves, part., *Megerle, Berl. Mag.* 1811.

zoa Brachiopoda, *Eichwald, Zool. Spec.* i. 272, 1831.

iques Agames Endocephales Brachiopodes, *Latr. Fam. Nat.* 325.

branchiata seu Brachiopodes, *Van der Hoev. Handb. der Z.* 692, 1850.

798 M. Cuvier (*Leçons d'Anatomie Comparée, Ann.* vii. i. placed the Brachiopods with *Hyalæa* in the third division shell-bearing acephalous mollusca, which he afterwards *Brachiopodes*. Thus :

Terebratules. Terebratula, Calceola, Hyalæa.

Lingules. Lingula.

Orbicules. Orbicula.

812 Lamarck (*Extrait du Cours*, 8vo, p. 105) regarded the Podops as part of the *Acephales testacés*.

Les *Brachiopodes*. Lingule, Terebratule, Orbicule.

Ostracées. Radiolite, Calceole, Cranie, Anomie, and other shells.

815 Rafinesque (*Analyse de la Nature*, 12mo, p. 148) divided the present Brachiopodes between the family *Ostreacia* of *ivalcia*, subfamily *Placunea*. 1. Calceolina = Calceola, Micella = Cranie.

Family *Brachiopea* of *Poleteria*. 1. Orbicula. 2. Terebratule. 3. Lingula.

817 M. Cuvier (*Règ. Anim.* ii. and ed. 2, 1829, iii. 122) regarded Les Brachiopodes as a class containing

Les Lingules.

Les Terebratules (Spirifères, Thécidées).

Les Orbicules (Cranies, Discines).

818 Lamarck (*Hist. Nat. des Animaux sans Vertèbres*) regarded the Brachiopods as forming the greater part of his third class of the CONCHIFÈRES MONOMYAIRES.

Les *Rudistes*. 1. Spherulite. 2. Radiolite. 3. Calceola. 4. Spirifère. 5. Discine. 6. Cranie.

Les *Brachiopodes*. 1. Orbicule. 2. Terebratule. 3. Lingule.

819 M. de Férussac (*Tabl. Syst. Moll.* fol. 38) regarded the *Brachiopodes* as a class of the *Acephales*, and divided them

1. *Les Lingules*. Lingule.

2. *Les Terebratules*. Terebratule, Magas.

3. *Les Cranies*. Orbicule, Cranie, Thécidée.

and placed *Calceole* in the family *Rudiste* of the class Lamellibranches.

In 1825 M. de Blainville (*Manuel Malac.* 8vo) divided the class Acephalophores into four Orders; the following contain what are now considered Brachiopods.

Order I. PALLIOBRANCHES.

1. *Coquille symétrique.* Lingule, Terebratule, Thécidie, Strophomène, Plagistome, Dianchore, Podopside.

2. *Coquille non-symétrique, irrégulière, constamment adhérente.* Orbicule, Cranie.

Order II. RUDISTES. Sphærolite, Hippurite, Radiolite, Erostrite, Calceole.

In 1825 M. Latreille (*Fam. Nat. Règ. Anim.* 8vo, 196) divided the Mollusques Agames Endocephales Brachiopodes into two Orders and three Families, thus:

1. *Pedunculés.* 1. *Équivalves*, Lingule. 2. *Inéquivalves*, Terebratule.

2. *Sessiles.* 1. *Fixivalves*, Orbicule, Cranie, Acarde, Sphærolite. Placing the genus *Calceole* in the family Ostracés of Cuvifères.

In 1829 M. Rang (*Manuel des Mollusques*, 12mo, Paris, p. 257) arranged the Acephales Testacés Brachiopodes thus:

I. *Lingules.* Lingule.

II. *Terebratules.* Térébratule, Strophomène, Thécidée, Calceole.

III. *Cranies.* Cranie, Orbicule.

In 1834 Leopold von Buch (*Ueber die Terebrateln*, Berlin, 4to) gives the following arrangement:—

A. Attached by the border.

* Between the two valves no hinge-line. 1. *Lingula*.

** At the border of the dorsal valve above the hinge.

† One valve perforated.

o. This perforation separated from the hinge-line by a *deltoidium*. 2. *Terebratula* (*Atrypa*, *Orthis*, *Strigocephalus*, *Uncina*, *Pentamerus*, *Magas*).

oo. The perforation is triangular, open, of which the base rests on the hinge-line, and the apex reaches to the apex of one valve. 3. *Delthyris* (*Spirifer*, *Cyrtia*, *Gypidia*).

†† Neither valve perforated.

o. A large cardinal area. 4. *Calceola*.

oo. No cardinal area. 5. *Leptæna* (*Producta*, *Strophomène*).

B. Attached by the lower side.

a. Middle of the lower valve perforated for attachment.

6. *Orbicula*.

b. Lower valve entire, attached by its whole face.

6 M. Deshayes (*Lamk. Hist. Nat. Anim. sans Vert.* vii. proposed the following arrangement :—

BRACHIOPODES.

Valves articulées.—1. *Productes*, Productus. 2. *Térebreatratule*. 3. *Thécidées*, Thecidée.

Valves libres.—4. *Lingules*, Lingule. 5. *Orbiculées*, Orbicula. 6. *Cranies*, Calceola, Cranie.

Gray in 1840 (*Synopsis Brit. Mus.* 1840, i. f. 7) divided them thus :—

The family of *Terebratulidæ* are regular, and somewhat like a lamp in form, and have therefore been called Lamp-brachiopods. The valves are articulated together, and are attached by a tendinous band, which passes out of the hole in the upper valve as in *Terebratula* and *Spirifer*.

Lingulidæ are attached by a tendinous tube, resembling that of the Barnacles, which projects between the apices of the valves.

Discinidæ, on the other hand, have the tendon passing through a linear slit near the middle of the under valve.

Gray p. 155 gives a list of the genera as follows :—

1. *Lingulidæ*, Lingula. 2. *Terebratulidæ*, *Terebratula*, *Spirifer*. 3. *Productidæ*, Productus, Calceola. 4. *Thecideidæ*, Thecidia. 5. *Craniidæ*, Crania. 6. *Discinidæ*, Discina.

11 Mr. John Phillips (*Figures and Descriptions of the British Fossils*, Svo, p. 54) arranged the genera of *Brachiopoda* as follows :

1. *Valves free*, attachment by exerted muscle.

2. *Valves equal*. 1. *Lingula*.

3. *Valves unequal*.

4. *Upper valves imperforate*, *Athyridæ*; * no cardinal area, *Athyris*; ** a cardinal area, *Calceola*.

5. *Upper valve perforated in or under the beak*.

6. *Beak reaching to the hinge-line*, *Delthyridæ*.

7. *Cardinal area more or less common to both valves*, *Orthis*.

8. *Cardinal area confined to the large valve*. * Internal plate of the

9. *Valves separate*, *Spirifera*. ** Internal plates of the larger

10. *Attached on the inside line of the shell*. † Plate narrow,

11. *Beak oblique*. †† Plates very narrow, *Pentamerus*.

12. *Cardinal area obsolete, beak incurved over a minute perforation*

13. *Beak is often obtuse, or merely serves to receive the beak of the*

14. *Smaller valve*, *Cleiothyris*.

15. *Beak reaching to the hinge-line*, *Cyclothyridæ*.

16. *Beak truncate, perforate*, *Epithyris*. ** Beak acute, the perforation

17. *Below it*, *Hypothyris*.

like a Grecian lamp in form, and have therefore Lamp-shells. The valves are articulated together, and the animals are attached by means of a tendinous band passing out of the hole in the apex of the upper valve, as in *Terebratulæ* and *Spirifer*.

“The family *Discinidæ*, on the other hand, have the opening passing out of a linear slit near the middle of the shell is suborbicular, and the upper valve is orbicular, but more symmetrical—*Discina*.

“Others are immediately attached by the opening to their under shell.

“The family of *Craniidæ* are attached by the opening to the upper valve, which has an oblique facet on the upper side. The lower valve is suborbicular, conical, with a subcentral opening. The muscular scars of the lower valves resemble a face, hence the name of *Crania*.

“The family of *Thecideidæ* are fossil shells, very small, but only attached by the apex of the lower valves, and somewhat lamp-like, and the cavity is filled with a complicated apparatus to support the internal organs—*Terebratulidæ*—*Thecidea*.

“The family of *Productidæ* are fossils, probably the most numerous; one valve is concave, the other flat, or convex, and they are attached into the cavity of the other; the hinge-line is straight, and the shell subsymmetrical—*Productus*, *Calceola*.”

8. *Terebratulidæ*. 1. Terebratula. 2. Hypothyris, 3. Pentamerus. 4. Camerophoria. 5. Uncites.

9. *Spiriferidæ*. 1. Spirifer. 2. Atrypa. 3. Martinia. 4. Strigocephalus.

10. *Thecideidæ*. 1. Thecidia.

In 1847 M. d'Orbigny (*Ann. Sci. Nat.* 1847; *Paléont. Franç. Terr. Crét.* iv. and *Cours Élémentaire de Paléontologie*, 12mo. p. 80, 1849) proposed the following arrangement:—

Order I. BRACHIOPODES BRACHIDES (*Brachidæ*).

1. BRACHIDES PROPRE.

Fam. 1. *Lingulidæ*. 1. Lingula. 2. Obolus.

2. *Calceolidæ*. 1. Calceola.

3. *Productidæ*. 1. Productus. 2. Chonetes. 3. Leptæna.

4. *Orthisidæ*. 1. Strophomena. 2. Orthisina. 3. Orthis.

5. *Rhynchonellidæ*. 1. Hemithyris. 2. Rhynchonella. 3. Strigocephalus. 4. Porambonites.

6. *Uncitidæ*. 1. Uncites. 2. Atrypa. 3. Pentamerus.

2. SEMIBRACHIDES.

1. *Spiriferidæ*. 1. Cyrtia. 2. Spirifer. 3. Spiriferina. 4. Spirigerina. 5. Spirigera.

2. *Magasidæ*. 1. Magas. 2. Terebratulina.

3. *Terebratulidæ*. 1. Terebratella. 2. Terebrirostra. 3. Fissirostra.

4. *Orbiculidæ*. 1. Siphonotreta. 2. Orbicella. 3. Orbiculoidea. 4. Orbicula.

5. *Cranidæ*. 1. Crania.

Order II. BRACHIOPODES CIRRIDES (*Cirrhidæ*).

1. *Thecidæ*. 1. Megathiris. 2. Thecidea.

2. *Caprinidæ*. 1. Hippurites. 2. Caprina. 3. Caprinula. 4. Caprinella.

3. *Radiolidæ*. 1. Radiolites. 2. Biradiolites. 3. Caprotina.

In 1848 Dr. Gray (*Ann. & Mag. N. H.* 1848, ii. p. 435; *Translated Wiegm. Arch.* 1849, 98, and *Lovén, Arsb.* 1845-1849, 213) proposed the following arrangement:—

BRACHIOPODA.—Subclass I. ANCYLOPODA.

The oral arms not extensile, or only at the tip; on fixed shelly supports, or in grooves in the under or ventral valves; the mantle is adherent to the shell, the substance of the shell being pierced with numerous minute perforations, which are pervaded by the processes of the mantle.

terated in the older specimens.

The order only contains a single family,

Fam. I. *Terebratulidæ*,

which is nearly synonymous with the smooth Sowerby, the perforated *Terebratula* of Cuvier, *Epithyris* of Phillips and *Terebratula* of King, *bratulidæ* of M'Coy, and *Cyclothyridæ* of Phillips.

The animal has been described by Linnæus, Blainville, Philippi, D'Orbigny and others. In some the hoops are united together below by a transverse band attached to medial longitudinal ridges of the ventral valve. *Terebratula* of Retzius = the *Terebratella* of *dorsata* and *Magas*, Sow. In others the hoop is free from the ventral valve, as *Gryphus*, *Megetera*, D'Orb. and *Terebratulina*, D'Orbigny, for *T. vitulæ* *serpentis*. D'Orbigny indicates other genera under the name *Terebroirostra* and *Fissirostra*.

Order II. The CRYPTOBRACHI

have the oral arms entirely attached in the form of lobed processes sunk into the grooves in the dorsal valve. They are generally thick shells. This order consists of only a single family.

Fam. I. *Thecideadæ*.

The animals are described by Philippi and I

and the substance of the valves is not pierced with orations, though the surface is sometimes spinulose, being only formed on the edge of the shell while it is used in size.

Order III. SCLEROBRACHIA.

Arms support a shelly band arising from the hinder edge of the ventral valve.

Fam. 1. *Spiriferidæ*.

Arms very largely developed and supported the whole length by a thin shelly? or cartilaginous? spirally twisted

shells are only known in the fossil state, but the spiral of the arms are generally preserved, and may be dissections of the fossil, and are often to be seen in the specimens.

It is equivalent to the genus *Spirifer* of J. Sowerby, the family *Delthyridæ*, M'Coy, who gave some explanations of the structure and the *Spiriferidæ* of King. He proposed some genera under the names of *Spiriferina*, and *Spirigerina*, according to the direction of the axis of the cones, but it is doubtful if these genera are only new ones already established.

Spirifer of Sowerby, as reduced by M'Coy, and the *Marthyris* of M'Coy, have the hinge as long or longer than the width of the shell. In *Athyris*, Dalman, and *Athyris*, M'Coy, it is the shells oblong, rounder behind.

According to the description of Mr. King, the genus *Strigifer* would appear to form the passage between this and the *Athyris* (*Ann. Nat. Hist.* xviii. 89).

Fam. 2. *Rhynchonellidæ*.

Arms are elongate, fleshy, supported at the base by a hard, diverging shelly laminae arising from the hinge of the ventral valve.

It is easily known from the *Terebratulidæ* by the cavity of the shell without shelly plates, its substance not perforated, and the surface being generally radiately plaited.

The species, *T. psittacea*, is known in the recent state; it has been described by Professor Owen. The family is related to the plaited *Terebratula* of the elder James Sowerby, the non-perforated *Terebratula* of Carpenter, the *Athyris* of Phillips, and part of the family *Terebratulidæ*. It contains the genus *Rhynchonella* of Fischer and the *Hypothyris* of Phillips; *Camerophoria*, King;

consists entirely of fossil species, some much re-
of the former family, but the shells are generally
are only attached to marine bodies by the surface
valve, as the genera *Productus*, Sow.; *Strophalos-*
netes, Fischer; *Leptæna* and *Orthis*, Dalman;
Rafinesque; and *Calceola*, Lamk. This family
King's *Productidæ*, *Strophomenidæ* and *Calceolidæ*

Fam. 2. *Craniadæ*.

Nearly allied to the last, but the upper valve
like *Patella*, and the animal is attached by the
the ventral valve.

The animal has been figured by Müller, Poli
includes the recent genus *Crania* of Retzius, in-
bicula of Lamarck, *Criopus* of Poli. The lower va
recent species I am acquainted with varies great
and form according to the position and habitation
This animal in many particulars is allied to *Theci-*

Fam. 3. *Discinidæ*.

The upper valve is conical and patelloid, the l
and is attached to marine bodies by a short tendi
which passes out through a slit in the hinder par
the ventral valve.

The animal of this genus has been described
under the name of *Orbicula*, Mr. G. B. Sowerb

entirely cartilaginous. The family consists only of a few genera, *Lingula*.

Order V. RUDISTES.

This order has been placed by modern authors with the Brachiopoda. The proofs of its belonging to this family are not very strong as there is no other to which they appear to be more allied, they may as well be retained in this position.

Cuvier, Férussac, and some other authors have regarded them as belonging to Cephalopoda, and some to Mollusca (Conchifera). Deshayes regards them as more allied to *Chama*, the character of the family having been the destruction of the inner coat of the shell during the life of the specimen.

De Meuschen has properly united them into one group under the name of Irregular Brachiopods or Rudistes, but he includes the genus *Crania*, which is a true Brachiopod.

This order is divided into three very distinct families.

Fam. 1. Radiolitiidæ.

The valves are more or less elongate-conical, fixed; the upper valve is conical or spiral, free; the texture of the lower valve is fibrous.

Radiolites has the upper valve flat or conical and cap-like. *Strophomena*, D'Orb., has a spiral and produced upper valve. Several of these genera has had many names applied to it, but the name of *Radiolites* by Lamarck has the priority. It has been called *Strophomena*, *Ostracites* and *Acardo*, and the cast of the interior of the shell has been considered as a genus, under the name of *Birosdamia*.

Fam. 2. Hippuritiidæ.

The upper valve is elongate, tapering sub-cylindrical, of a solid cellular texture; the lower valve is nearly flat, and pierced by circular pores radiating to the circumference with branches to the upper surface.

This family contains only a single genus, *Hippurites*, Lamarck, which has also had many other names applied to it, as *Cornuhooceratites*, *Batolites* (or *Batholites*), *Raphanister*, and *Strophomena*.

Fam. 3. Caprotinidæ.

The upper or fixed valve is conical and spirally twisted, and ornamented with prominent ridges or transverse septa; the lower or free valve is oblique or spiral. They differ from *Caprotina* valves not being of a cellular or fibrous texture.

This family contains two genera:—

Caprotina, D'Orb., which has the cavity of the shell merely filled with internal ridges.

reorata. 5. Magas. 6. Inecidea. 7. Atrypa
cephalus. 9. Uncites. 10. Pentamerus. 11.
12. Enteletes. 13. Spirifer. 14. Trigonotreta.
16. Porambonites. 17. Orthis. 18. Pronites.
nites. 20. Orthambonites. 21. Gonambonites.
23. Leptæna. 24. Plectambonites. 25. Strophon
ductus. 27. Calceola.

B. *Rudistæ*. 28. Orbicula. 29. Crania. 30.
31. Hippurites. 32. Radiolites. 33. Sphærulites
35. Ichthyosarcolithus. 36. Caprina. 37. Requi
protina. 39. Plagioptychus. 40. Dipilidia. 41.

In 1850 Dr. Van der Hoeven (*Handbuch der Zo*
1850, 80. p. 692) divided the *Palliobranchiata* s
thus:—

I. *Testa acardis*. 1. Lingula. 2. Orbicula.
II. *Testa cardine instructa*. 4. Calceola. 5.
Terebratula. 7. Spirifer. 8. Productus.

Subclass 1. ANCYLOPODA.

The oral arms recurved and affixed to shelly app
disk of the dorsal valve. Shell minutely and clo
Ancylopoda, *Gray, Ann. & Mag. N. H.* ii. 1848, 4
Moll. B. M.; in Wiegmann, Arch. 1849, 48. and

Fam. 1. TEREBRATULIDÆ.

Shell minutely punctate, usually round or oval, and smooth or striated; *ventral valve* (fig. 2) largest, its umbo produced into a beak with the apex truncated and perforated; foramen (*f*) separated from the hinge-line by a small triangular plate or *deltidium* (*d*) composed of two pieces (*deltidia*); teeth (*t*) situated one on each side of the deltidium, supported by plates; *dorsal valve* (fig. 1) with a depressed umbo; furnished interiorly with a prominent cardinal process (*j*) between the sockets for the teeth (*t'*), a hinge-plate (*p*) with four cavities and a central ridge or *septum* (*s*); internal skeleton in the form of a slender shelly *loop*, attached by its crura (*c*) to the hinge-plate, and furnished near its origin with *oral processes* (*c*).

Fig. 1.



Fig. 2.



Fig. 1. Dorsal valve:—*j*. cardinal process; *t'*. dental sockets; *p*. hinge-plate; *s*. septum; *c*. crura of the loop; *l*. reflected portion of the loop; *m*. quadruple adductor-impression.

Fig. 2. Ventral valve:—*f*. foramen; *d*. deltidium; *t*. teeth; *a*. adductor-impression; *r*. retractor impressions; *p*. pedicle-muscles; *x*. anal muscles; *v*. position of the vent; *z*. attachments of peduncle-sheath.

Animal always attached by a peduncle; furnished with cirrated arms, united throughout by membrane, folded upon themselves, and only spiral at their extremities; muscles of three kinds,—adductors, retractors, and those which go to the peduncle (*byssal* or *pedal* muscles of ordinary bivalves). The adductors are attached to four spots near the centre of the dorsal valve (*m*), and to a single spot behind the centre of the opposite valve (*a*); the retractors originate on each side of the adductor in the ventral valve (*r*), and are attached to the cardinal process (*j*) of the dorsal valve; the hinge-teeth form the *fulcrum* on which the dorsal valve turns; of the *pedicle* muscles, two (*p*) originate outside the adductor and behind the retractors in the ventral valve: two

others, each with a double termination, are inserted in the hinge-plate (*p*) of the dorsal valve; the *septum* supports the visceral membranes.

The position at which the intestine of *Terebratula* terminates, namely just behind the adductor muscle (fig. 2, *v*), seems to imply that it discharges through the byssal foramen; and as the same arrangement exists in *Terebratulina*, *Kraussia*, *Argiope*, and in the recent *Rhynchonella nigricans*, it becomes probable that such is the general rule; in those extinct genera which have the foramen closed at an early age, there is always an opening between the *deltidium* and the umbo of the smaller valve (e. g. in *Uncites gryphus*), which has been mistaken for a byssal notch. The foramen in the hinge-plate of *Athyris* shows that the intestine took the same course in the *Spiriferidae* as it is known to do in the *Rhynchonellidae* and *Terebratulidae* *.

The following illustration (fig. 2*) is from a drawing by Mr. Albany Hancock.

Fig. 2*. *Waldehemia flavescens*.

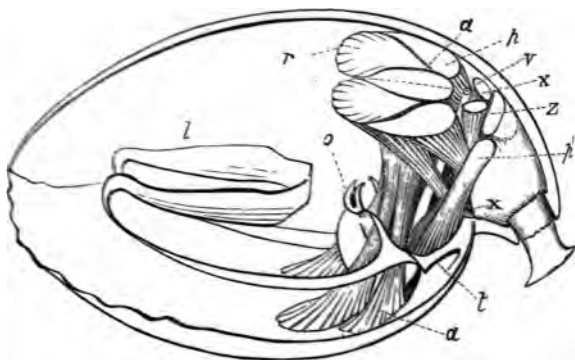


Fig. 2*. *a.* adductors; *r.* retractors; *x.* accessory retractors (anal muscles); *p. p.* pedicle-muscles; *s.* function uncertain; *o.* mouth; *v.* vent; *l.* loop; *t.* dental socket.

* The muscular system of *Ter. flavescens* was correctly (though diagrammatically) represented and described by Mr. King in his Memoir of the Permian Fossils, published by the Palaeontographical Society in 1850; the function of the retractor muscles was not stated, but must have been understood. (Woodward, MS.)

rebratuladae, *Leach, MSS.* 1818, *Ann. & Mag. N. H.* xx. 273.
 rebratulidæ, *Gray, Syn. B. M.* 1840; 1842, 85, 92; *Sow. Ann.*
N. H. 2nd ser. ii. 436, 1848; *Wieg. Arch.* 1849, 98.

M' Coy, Carb. Foss. Ireland.

King, Ann. & Mag. Nat. Hist. xviii. 26.

Forbes & Hanley, Brit. Moll. ii. 343.

D'Orb. Cours Paléont. 80. 1849.

rebratulacea, *Menke, Syn.* ed. 2. 95, 1830.

rebratulacea, part., *Anton, Verz. Conch.* 12. 21.

rebratulaceæ, *Menke, Syn.* ed. 1. 56, 1828.

les Térébratules, *Féruss. Tab. Syst.* 1821.

Rang, Man. Moll. 258.

rebratulinae, *Agass. Nomen.* 1847.

ingulae, part., *Eichw. Zool. Spec.* i. 275.

tecididæ, part. (*Megathyris*), *D'Orb. Ter. Crét.* iv.

tylothyridæ, *Phillips, Pal. Foss. Cornwall.*

Synopsis of Tribes and Genera.

A. Loop attached to the hinge-plate.—Terebratulanina.

1. TEREBRATULA.
2. TEREBRATULINA.
3. WALDHEIMIA.

B. Loop attached to the septum in the middle of the dorsal lve.—Magasina.

4. TEREBRATELLA.
5. TRIGONOSEMUS.
6. MAGAS.
7. BOUCHARDIA.
8. MEGERLIA.
9. MORRISIA.
10. KRAUSSIA.

C. Loop attached to the surface of valve.—Argiopina.

11. ARGIOPE.

Tribe 1. TEREBRATULANINA.

Shell usually oval, valves convex, margins even or only slightly
 curved; hinge-line curved; beak of the larger valve perforated,
 the foramen quite at the apex; deltidium of two pieces, often
 rounded; internal skeleton consisting of a slender shelly loop,
 attached in the middle to the valve.

- Lamk. Phil. Zool.* 1809; *Hist.* vi. 243, ed.
Lovèn, Ind. Moll. Skand. 29.
Leach, Zool. Miscell. i. 76, 1814.
Schum. Ess. 133.
Féruss. Tab. Syst. 1821.
Rang, Man. 1829.
Gray, Lond. Med. Repos. xv. 1821; *Syn.*
1842, 92; *Proc. Zool. Soc.* 1847, 202.
Menke, Syn. 1828 & 1830.
Forbes & Hanley, Brit. Moll. ii. 349.
Anomia, part. (animal), *Linn.* 1768, *Syst. Nat.*
Lampades, part., *Gevers*, 1787.
Lampas, Humph. 1797, *Mus. Calon.* (not *Schum.*)
Gryphus, Mühlfeldt, 1811, *Berlin Mag.* 64.
Gray, Ann. & Mag. N. H. 1848, ii. p. 438 (see
Epithyris, Phillips, 1844, *Pal. Foss.* p. 55.
Smooth Terebratulæ (with a truncated beak),
History of Northampton.
Terebratula (restricted), *Fischer*, 1809, *Foss. Nouv.*
Smooth Terebratulæ, Sowerby, 1815, *Min. Con.* p. 1
Terebratulæ non-plicatæ, Buch, 1834, *über Terebratula*
Punctate Terebratulæ, Morris, 1841, *Min. Con.* p. 5
p. 12.
Carpenter, 1844, *Report Brit. Assoc.* p. 18.
Epithyridæ, Morris, 1846, *Geol. Soc. Journ.* p. 31
Terebratula and Terebratulina, D'Orb. Paléont. F.

1. TEREBRATULA.

Shell:—Valves convex, foramen complete; loop short and simple (fig. 3).

Terebratulæ with short loops, *Davidson*, 1852, *Ann. Nat. Hist.* p. 364; *Mon. Cret.* p. 45.

Thyris (elongata), *King*, 1849, *Permian Fossils*, 81, 146 (not Phillips).

Terebratulæ Jugatæ repandæ, part., *Buch*, 1834, *über Terebratulæ*.

Terebratulæ carinata sinuatæ, part., *Buch*, l. c. 1834.

Terebratulæ biplicatæ, *Quenst.* 1851, *Handb.* p. 471.

Phus (vitrea), *Megerle*, *Berl. Mag.* 1811, 64.

Fig. 3. *Terebratula vitrea*.



A.



B.

Dorsal valve, showing the small loop.

Dorsal valve with the animal; the œsophagus passes through the opening of the loop.

TEREBRATULA VITREA.

B.M.

Shell rounded-ovate, slightly truncated in front, ventricose, smooth, translucent, milky, or pale horn-colour; valves nearly equal; margins even; beak short, recurved; foramen small, complete; deltidium nearly concealed; loop simple, one-fourth length of the shell. Lon. 17, lat. 14, alt. 11 lines.

Terebratula vitrea, *Linn.* S. N. 1153.

Gmelin, S. N. 3344.

Da Costa, *Elém.* 292. t. 6. f. 3.

Terebratula vitrea, *Born.* *Mus.* 119. *Vig.* 116.

Gmelin, S. N. 3347.

Terebratula vitrea, *Lamk. Syst. A. s. V.* 139, 1801; *E. M.* t. 239.

1; *Hist.* vi. 245, ed. 2. vii. 329.

Sow. Thes. Conch. vii. 353. t. 70. f. 56-59.

Philippi, *Moll. Sicil.* i. 95, t. 6. f. 6; ii. 66.

Kuster, Conch. vii. 21. t. 2. f. 11-13; t. 1. f. 13. 14.

Davidson, Ann. Nat. Hist. 1852, p. 364.

Terebratula (a) sub-vitrea (Leach), Blainv. Dict. Sci. Nat. 135. 1828.

Terebratula eothyra, Phil. 1844, *Moll. Sicil.* ii. p. 68. t. 18.

Gryphus vitreus, Megerle, Berl. Mag. 1811, 64.

Habitat. Mediterranean, in 90 to 250 fathoms, on mill mud (*Forbes*).

Fossil. Pliocene. Sicily.

2. TEREBRATULA SPHENOIDEA.

Shell triangularly-ovate, truncated in front, smooth; m even, obscurely bisinuated in front; dorsal valve convex ne umbo, depressed in front; beak prominent, scarcely c foramen moderate, round; deltidium conspicuous; loop simple. Lon. 12, lat. 10, alt. 6 lines.

Terebratula sphenoides, Phil. 1844, *Moll. Sicil.* ii. p. 67. t. 1
Bronn, Index, p. 1251.

Fossil. Pliocene. Sicily.

3. TEREBRATULA SEPTATA.

Shell oval, subquadrate, ventricose, smooth; valves g rather truncated in front, sides nearly parallel; dorsal valv the front margin rather bent downwards, beak prominent, foramen moderate, round; deltidium solid. Lon. 10, lat. 7 lines.

Terebratula septata, Phil. 1844, *Moll. Sicil.* ii. p. 68. t. 1
Bronn, Index, p. 1250.

Fossil. Pliocene. Sicily.

4? TEREBRATULA UVA.

Shell narrowly-oblong, gibbous, smooth, slightly trans pale horn-colour; margins even; beak produced, trun foramen large, deltidium small, concave; loop short?. L lat. 7, alt. 6 lines.

Terebratula uva, Brod. 1833, *Proc. Zool. Soc.* 124.

G. B. Sow. Thes. Conch. vii. 353. t. 70. f. 53-55.

Dav. Ann. Nat. Hist. 1852, ix. p. 364.

Hab. Gulf of Tehuantepec (*Mus. Cuming*).

5. TEREBRATULA GRANDIS.

Shell oval, ventricose, smooth, becoming very thick wit front margin obscurely biplicate; beak produced, sligh curved, lateral ridges indistinct; foramen large and row

am narrow, concave, incomplete in the fry; loop simple, one-third as long as the dorsal valve. Lon. $4\frac{2}{3}$, lat. 3, alt. 2 inches (same size).

Terbratula grandis, Blum. 1803, *Arch. Tell.* t. 1. f. 4; *Encycl. Méth.* p. 239. f. 2.

Bronn, *Index*, p. 1237.

Phil. Moll. Sicil. ii. p. 67.

Dunker, *Paleont.* p. 129. t. 18. f. 4.

Terbratulites giganteus, Schl. 1813, *Leonhard's Min. Taschen.* 7. p. 104; *Petref.* p. 278. no. 48.

Buch, *Mém. Soc. Géol. France*, iii. p. 222 (not figured).

Terbratula spondylodes, Smith, 1817, *Strat. Syst.* p. 12.

Terbratula birostris, Val. 1819, in *Lam. Hist. Nat.*; *Dav. Ann. Nat. Hist.* June 1850, pl. 13. f. 23.

Terbratula variabilis, Sow. 1829, *Min. Con.* vi. p. 148. t. 576. 2-5.

Galeotti, *Mem. Geol. Brabant*, p. 151.

Nyst, *Coq. Foss. Anvers*, p. 15. no. 37.

Terbratula perforans, Dujardin, 1837, *Mém. Soc. Géol. Fr.* p. 272.

Terbratula maxima, Charlesworth, 1837, *Mag. Nat. Hist.* p. 92. 13, 14.

Terbratula Sowerbii, Nyst, 1843, *Coq. Belg.* p. 335. pl. 27. f. 3. *Sil. Miocene.* England; Belgium; France.

† TEREBRATULA AMPULLA.

B.M.

Shell roundish, inflated, smooth; margins obscurely plaited in front. Lon. 24, lat. 18 lines.

Terbratula ampulla, Brocch. 1814, *Conch.* ii. 466. t. 10. f. 5.

Terbratula ampulla, Desh. *E. M.* iii. 1027.

Buch, *Mon. Tereb.* 111. n. 4.

Val. in *Lamk. Hist.* vii. 336.

Dav. Ann. Nat. Hist. June 1850.

Terbratula Pedemontana, Valenciennes, in *Lam. Hist.* no. 34.

See *Dav. Ann. Nat. Hist.* June 1850, pl. 14. f. 34.

Terbratula complanata, Brocchi, *Conch.* ii. p. 469. t. 10. f. 6?

Sil. Miocene. Turin; Malta.

† TEREBRATULA BISINUATA.

B.M.

Shell oval, rather depressed, smooth, fragile; margins bipliate in front; beak produced, nearly straight; foramen large, circular; deltidia small, united. Lon. 22, lat. 19 lines.

Terbratula bisinuata, Valenc. 1819, in *Lamk. Hist.* vii. 339.

Desh. Foss. Paris, i. t. 65. f. 1, 2; *E. M.* iii. 1025.

Davidson, Ann. Nat. Hist. v. pl. 13. f. 32; *Mon. Ter. Brach.* p. 19. pl. 1. f. 17.

Terebratula gigantea, var., *Buch*, *Mém. Soc. Géol. France* p. 222. pl. 20. f. 3 (not *Schl.*).

Terebratula succinea, *Desh.* 1824, i. p. 390. pl. 65. f. 3 (yo
Terebratula grandis, *Bronn*, *Index*, p. 1237 (not *Blum.*).

Fossil. *Eocene*. France; England.

8. TEREBRATULA MONTOLEARENSIS.

Shell oval, depressed and bi-sinuated in front, smooth; moderately prominent, slightly recurved; foramen moderate; deltidium triangular. Lon. 11-13, lat. 8-11, alt. 1 lines.

Terebratula Montolearensis, *Leymer*. 1846, *Mém. Soc. France*, t. 1. p. 362. pl. 15. f. 13, 14.

Fossil. *Eocene*. France.

9. TEREBRATULA ÆQUILATERALIS.

Shell smooth, equilaterally triangular, rounded in front; ventral valve gibbous; beak large, curved, truncated by a foramen; margins even. Lon. 28, lat. 28 lines.

Terebratula æquilateralis, *D'Arch.* 1846, *Mém. Soc. Géol.* 2nd ser. ii. p. 214. pl. 9. f. 7.

Fossil. *Eocene*. France.

10. TEREBRATULA TRILOBATA.

Shell oval, smooth, subantiquated, somewhat sinuate in front; beak produced, recurved; foramen apical, narrow. Lon. , lat. 10, alt. 1 lines.

Burtin, 1784, *Oryct. Brux.* pl. 8. f. L. N. P.

Terebratula trilobata, *Galeotti*, 1837, *Mem. Geog. Brabant* p. 150. pl. 4. f. 16 (imperfect).

Terebratula lævis, *Nyst*, 1843, *Belg.* p. 334.

D'Orb. Prod. ii. p. 395.

Terebratula Kickxii (*Galeotti*), *Bronn*, *Index*, p. 1240.

Terebratula papilio, *König*, 1825, *Icones Foss. Sectile* (imperfect; no description).

Fossil. *Eocene*. Belgium.

11.? TEREBRATULA KICKXII.

Shell oval, attenuated in front, inflated, smooth, ornamented with fine, regular, concentric lines of growth; margin of beak short, recurved, with a very minute apical foramen and lat. 4½ lines.

Terebratula Kickxii, (*Galeotti*) *Nyst*, 1843, *Belg.* p. 335. pl. 29. f. 4.
D'Orb. Prod. ii. p. 395.

sil. Eocene. Belgium.

TEREBRATULA WILMINGTONENSIS.

Shell oblong, smooth; margins nearly even; beak produced,
very straight, truncated by a moderately large foramen; deltidia
rather long. Lon. 10, lat. 7 lines.

Terebratula Wilmingtonensis, *G. Sow.* 1845, *Proc. Geol. Soc.*
345, p. 565.

sil. Eocene. N. Carolina.

TEREBRATULA CARNEA.

B.M.

Shell depressed, smooth, obtusely five-sided, front edge short;
vesicles equally convex, slightly flattened along the middle, often
of a dull red colour; margins even; beak small; foramen mi-
nute. Lon. 14, lat. 14, alt. 8 lines.

Terebratula carnea, *Sow.* 1813, *Min. Con.* i. p. 47. pl. 15. f. 5, 6.
D'Orb. Ter. Crét. iv. t. 513. f. 5-8; *Prod.* ii. p. 258.

Quenstedt, Handb. p. 473. t. 38. f. 2.

Pusch, Polen. Pal. p. 18. t. 3. f. 12?

Alth, Geog. Lemberg (in *Haidinger's Abhandl.* 1850), p. 258.
t. 13. f. 8.

Terebratula lens, *Nilsson, Petref. Suec.* p. 35. pl. 4. f. 6.

Dalman, Vet. Acad. p. 146.

Terebratula elongata, *Sow.* 1823, *M. C. v.* p. 49. t. 435. f. 1, 2.

Terebratula ovata, *Nilsson, Petr. Suec.* p. 33. t. 4. f. 3 (not
ov.).

Dalman, Vet. Acad. p. 145.

Ræmer, Kreid. p. 44.

Terebratula minor, *Nilsson, Petr.* 1827, p. 34. t. 4. f. 4.

Ræmer, Kreid. p. 44.

Terebratula plebeia, *Dalman*, 1828, *Vet. Acad.* p. 145. t. 4. f. 4.

sil. Upper Chalk. England; Belgium; France; Russia;
Sweden.

TEREBRATULA RHOMBOIDALIS.

Shell rhomboidal, smooth, marked with a few concentric lines;
margins sinuated in front; dorsal valve gibbous, depressed at the
ends; ventral valve curved, flattened along the centre, and
slightly depressed in front; beak short, curved; foramen mode-
rately round; deltidium distinct. Lon. 13, lat. 9½, alt. 7 lines.

Terebratula rhomboidalis, *Nilsson*, 1827, *Petr. Suec.* p. 34. t. 4. f. 5.

Dalman, 1828, *Vet. Acad.* p. 146.

Shell OBOVATE, SMOOTH, INEQUALLY COMPRESSED TOWARD margins even; dorsal valve strongly curved, gibbous umbo, depressed and flattened in front; ventral valve straight; beak short and thick, not recurved; foramen round; deltidium solid, concave. Lon. 10, lat. 8

Terebratula Becksi, *Römer*, 1840, *Nord. Kreid.* p. 4
Bronn, Index, p. 1229.

Fossil. *Chalk (Pläner)*. Ahaus, Westphalia.

16. TEREBRATULA SQUAMOSA.

Shell orbicular, or oval; valves nearly equally convex with squamose lines of growth and fine radiating purplish margins even, or slightly bisinuated; beak short, recurved; deltidium solid. Long. 7, lat. 6, alt. 5

Terebratula squamosa, *Mantell*, 1822, *Geol. Suss.* p.

Davidson, Ann. Nat. Hist. 1847, p. 254. pl. 18.

D'Orb. Prod. ii. p. 172.

Bronn, Index, p. 1251.

Terebratula Robertoni, *Viquesneli*, *Murchisoni* et
D'Arch. 1847, *Mém. Géol. Soc. France*, 11. pt. 2.

Fossil. *U. Greensand, Chalk-marl*. England.

17. TEREBRATULA FITTONI.

Shell small, oval, ventricose, smooth, biplicate imbricated with squamose lines of growth; valves equally convex; beak recurved; foramen large, round. Lon. 5, lat. 10

ratula capillata, *D'Arch.* 1846, *Bull. Soc. Géol. Fr.* 2nd ser. p. 336; *Mém. Soc. Géol. France*, 2nd ser. ii. p. 323. pl. 20. -3.

Davidson, *Mon. Cret.* p. 46. pl. 5. f. 12.

ratula linearis, *Münster*, in *Cambridge Museum*.

lylus undulatus, *Geinitz*! (according to *Koninck*).

. *Red Chalk* (*Gault*). Norfolk.

Tourtia (*Greensand*). Tournay, Belgium.

EREBRATULA LONGIROSTRIS.

B.M.

ell ovate-oblong, smooth, with long, straight and thick beak; *en* very large, round; *deltidium* elongated, solid; *front* n slightly bisinuated. Lon. 28-39, lat. 14-22, alt. 11-18

ites longirostris, *Wahl.* 1821, *N. Actu Upsal.* viii. p. 61. t. 4. 5, 16.

ratula longirostris, *Nilsson*, *Petr. Suec.* p. 33. pl. 4. f. 1.

Dalman, 1828, *Vet. Acad.* p. 144.

D'Orb. Prod. ii. p. 258.

nosemus rustica, *König*, 1825, *Icones Foss. Sect.* p. 4. f. 75.

. *Chalk*. Sweden.

EREBRATULA DEPRESSA.

B.M.

ell smooth, oblong, transversely dilated, contracted towards *eak*, obtuse in front; *beak* produced, straight, thick, *trun-* by a large foramen; *deltidium* large and solid. Lon. 24, 9 lines.

ratula depressa, *Val. in Lam.* 1819, *An. sans Vert.* vi. 249.

D'Orb. Prod. ii. p. 172.

Davidson, 1850, *Ann. Nat. Hist.* June, pl. 13. f. 15.

ratula longirostris?, *Ræmer*, 1839, *Nordd. Ool.* ii. p. 21. 8. f. 13.

Bronn, *Index Paleont.* 1241.

Ræmer, *Kreid.* p. 42.

ratula Nerviensis, *D'Archiac*, 1847, *Mém. Soc. Géol. Fr.* ii. 313. pl. 17. f. 2-10.

ratula Viquesneli, *D'Archiac*, pl. 18.

ratula ovalis, *Morris*, *Journ. Geol. Soc.* 1846, p. 384. f. 1 (t *Lamk.*).

. *U. Greensand?* (*Tourtia*). Belgium.

EREBRATULA BIPPLICATA.

B.M.

ell oblong, smooth, gibbose; margins bisinuated in front; *convex*, marked with lines of growth and obscurely striated



Fossil. *U. Greensand, Chalk.* Tuscany; England;

22. *TEREBRATULA OBTUSA.*

Shell oval, smooth, rather depressed, bisinuated in of growth becoming strong towards the margin; much flattened, sinuated only on the front of adult ventral valve with a thick, recurved beak; forame round; deltidium nearly concealed. Lon. 18, lat. 16, *Terebratula obtusa*, Sow. 1823 (and *T. biplicata*, part v. p. 53. t. 437. f. 2-4.

Terebratula curvirostris, Nilsson, 1827, *Petref. Suec* f. 2.

Dalman, Vet. Acad. p. 144.

Ræmer, Kreid. p. 42.

Fossil. *U. Greensand* ("Gault"). Cambridge; Sw *Red Chalk* (Gault). Hunstanton.

23. *TEREBRATULA TORNACENSIS.*

Shell smooth, inflated, somewhat pentagonal, rou sides, truncated in front; margins strongly bisinuat beak produced, slightly curved, rounded, thick, tru large foramen; deltidium large and solid. Lon. 17, 1 lines.

Terebratula Tornacensis, *D'Arch.* 1847, *Mém. Soc.*

ratula Roissyi, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 321. 19. f. 4.

ratula Virleti, *Id.* f. 6.

ratula revoluta, *Id.* f. 3.

ratula subpectoralis, *Id.* f. 9.

ratula gussignisensis, *Id.* f. 10.

l. *Greensand (Tourtia)*. Belgium.

TEREBRATULA LENTOIDEA.

ell suborbicular, depressed, smooth; margins even, slightly in front; dorsal valve round, slightly convex; beak small, gently curved, laterally keeled; foramen small. Lon. $7\frac{1}{2}$, lat. 7, lines.

ratula lentoidea, *Leym.* 1842, *Mém. Géol.* v. p. 12. t. 15. 0.

Reuss, Böhm. Kreid. p. 53. pl. 26. f. 13.

ratula lentiformis, *Leym. Mém. Géol.* iv. p. 321.

l. *Greensand*. France.

TEREBRATULA PARVA.

ell small, oval, inflated, smooth, with three rounded plaits in front; beak large, recurved, truncated by a large round foramen; foramen short. Lon. $3\frac{1}{2}$, lat. 3, alt. 2 lines.

ratula parva, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 322. 19. f. 7.

D'Orb. Prod. ii. p. 172.

ratula parvula, *D'Arch. id.* pl. 19. f. 8.

l. *U. Greensand*. Belgium.

TEREBRATULA SEMIGLOBOSA.

B.M.

ell nearly circular, gibbous, smooth; ventral valve deepest, uniformly gibbous; front margin undulated, with two risings in front of the dorsal valve; beak thick, obtuse; foramen moderate. Lon. 15, lat. 13, alt. 11 lines.

ratula semiglobosa, *Sow.* 1813, *Min. Con.* i. p. 48. pl. 15. f. 9.

Dalman, 1828, *Vet. Acad.* p. 145.

D'Orb. Ter. Crét. iv. 514. f. 1-4.

Reuss, Verst. Böhm. p. 51. pl. 26. f. 6-8.

ratula subrotunda, *Sow.* 1813 (part.), *Min. Con.* pl. 15. f. 1.

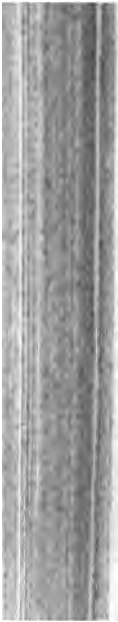
Reuss, p. 50. pl. 41. f. 2.

ratula subundata, *Sow.* 1813, *Min. Con.* i. p. 47. pl. 15. f. 7.

Reuss, p. 50. t. 41. f. 7.

ratula carnea, *Reuss*, p. 50. f. 9-11 (not *Sow.*).

l. *Chalk*. England; Belgium; France.



Buch, 1827, 1830, 1831, p. 50, 52, 53, 54, 55.
Bronn, Index, p. 1238.

Pusch, Polens Pal. t. 3. f. 16. p. 197.

Fossil. *Chalk.* Poland; Faroë.

29. TEREBRATULA OBESA.

Shell oblong, ventricose, smooth; front margin and shallow central depression and two angular serrations; sides obscurely striated; beak short and thick truncated by a large round foramen; deltidium co short and simple. Lon. $2\frac{1}{2}$, lat. 2, alt. $1\frac{1}{2}$ inch.

Terebratula obesa, Sow. 1825, Min. Con. v. p. 54.

Brown, Illust. Conch. pl. 54. f. 28, 29.

D'Orb. Ter. Crét. iv. p. 101. pl. 513. f. 1-4.

Davidson, Mon. Crét. p. 33. pl. 5. f. 13-16.

Fossil. *U. Chalk, U. Greensand.* England; Fran

30. TEREBRATULA SULCIFERA.

Shell oval, inflated, smooth, ornamented with bracing lines of growth in regular series from the margin; valves nearly equally ventricose; margin elevated in front; beak short, very thick, rounded foramen large and round; deltidium concealed. L alt. 16 lines.

Terebratula sulcifera, Morris & Dav. 1847, Ann. N. p. 254. pl. 18. f. 7.

D'Orb. Prod. ii. p. 172.

terebratula albensis, *Leym.* 1841, *Mém. Géol.* iv. 288, 289; v. 1, 29. t. 15. f. 2-4.

terebratula bulla, *J. Sow.* 1850, *Dixon's Geol. Sussex*, p. 346. pl. 27. f. 11.

terebratula semiglobosa, var. γ , *Bronn, Index*, p. 1250.

Reuss, Verst. Böhm. Kreid. p. 51. pl. 26. f. 5.

sil. *Lower Chalk.* Sussex; Rouen.

TEREBRATULA HARLANI.

B.M.

Shell oval, elongated, thick, smooth, with concentric lines of growth; dorsal valve moderately convex, raised and flat in the centre, depressed at the sides; margins even, slightly elevated in the middle; ventral valve deep; beak thick, recurved, slightly keeled at the sides; foramen very large; deltidium nearly concealed. Lon. 26, lat. 16, alt. 15 lines. (Lon. 36 lines, *Morton.*)

terebratula Harlani, *Morton*, 1829, *Acad. Nat. Sc. Philad.* p. 73. pl. 3. f. 1; 1834, *Syn. Cret.* p. 70. pl. 3. f. 1.

terebratula Camilla, *Morton, Syn. Cret.* pl. 9. f. 8, 9.

terebratula perovalis?, *Morton*, 1829, *Journ. Philad.* p. 77. pl. 3. f. 7, 8 (not *Sow.*).

sil. *Chalk.* New Jersey, U.S.

TEREBRATULA FRAGILIS.

Shell elongated, oval, thin, fragile, smooth, strongly biplicated at the front; dorsal valve with two longitudinal ridges almost its full length; ventral valve with a prominent central ridge, and corresponding lateral depressions. Lon. 21, lat. 12 lines.

terebratula fragilis, *Morton*, 1829, *Journ. Acad. Philad.* p. 75. pl. 3. f. 3, 4; 1834, *Syn. Cret.* p. 70. pl. 3. f. 2 (not *Schl.*).

terebratula subfragilis, *D'Orb.* 1850, *Prod.* ii. p. 258.

sil. *Chalk.* New Jersey, U.S.

?TEREBRATULA TOUCASIANA.

Shell like *T. semiglobosa*, but always more depressed, most prominent at the front margin.

terebratula Toucasiana, *D'Orb.* 1850, *Prod.* ii. p. 258.

sil. *Chalk.* France.

?TEREBRATULA VENDOCINENSIS.

Shell small, globular, round, smooth; front margins sinuated; dorsal valve scarcely convex.

terebratula Vendocinensis, *D'Orb.* 1850, *Prod.* ii. p. 258.

sil. *Chalk.* France.

36. TEREBRATULA PRÆLONGA.

Shell ovate, much elongated, gibbose; front slightly with a depression in its middle; beak prominent, large smooth. Lon. 14, lat. 7 lines. (Lon. 18, lat. 12, a Morris.)

Terebratula prælonga, J. Sow. 1836, *Geol. Trans.* iv. pl. 14. f. 14.

Fossil. Neocomian. England; France; Germany; Sw

37. TEREBRATULA ACUTA.

Shell oblong, elongated, somewhat pentagonal, shallow, depressed at the sides, smooth; margins even, sinuated in front; beak prominent, scarcely curved rather large; deltidium elongated. Lon. 14, lat. 11, Terebratula buplicata-acuta, Buch, 1843, *Mém. Soc. G* p. 220.

Terebratula prælonga, D'Orb. *Ter. Crét.* iv. p. 74. t. 1

Terebratula acuta, Quenst. 1851, *Handb.* p. 473. t. 38

Fossil. Neocomian. France; Switzerland.

38. TEREBRATULA SELLA.

Shell subquadrangular, smooth; front considerably narrow, sharply bisinuated; sides depressed; beak curved; foramen moderate, round; deltidium rather Lon. 15, lat. 13, alt. 7 lines.

Terebratula Sella, Sow. *M. C.* 1823, v. p. 53. t. 437.

D'Orb. *Ter. Crét.* iv. t. 510. f. 6-12.

Ræmer, *Kreid.* 1843, p. 43. t. 7. f. 17.

Terebratula Rœmeri, D'Archiac, *Mém. Géol. Soc. Fr*

Terebratula undulata, Pusch, *Polens Pal.* p. 20. t. 4.

Kner, *Kreid. Lemberg (in Haid. Abhandl.* 1850)

Fossil. Neocomian, Gault, U. Greensand. England;

39. TEREBRATULA MOUTONIANA.

Shell ovate, depressed, smooth, finely striated on dorsal valve rather flat, slightly raised in the centre ventral valve convex; beak recurved; foramen rather deltidium partly concealed. Lon. 20, lat. 13, alt. 8 li

Terebratula Moutoniana, D'Orb. *Ter. Crét.* iv. p. 89. t. 1

Prod. 2. p. 108.

Terebratula perovalis, Ræmer, 1839 (not Sow.), *Ool*

Kreid. p. 42.

Fossil. Neocomian. France; Germany.

TEREBRATULA CARTERONIANA.

Shell roundly angulated, ventricose, smooth; margins bisinuate; beak contracted, slightly curved; foramen small, round; deltidium inconspicuous; dorsal valve with two small, elevated spines in front. Lon. 13, lat. 12, alt. 11 lines.

Terebratula Carteroniana, *D'Orb. Ter. Crét.* iv. p. 80. t. 507. f. 1-5; *Prod.* 2. p. 85.

Local. Neocomian. France.

TEREBRATULA ARABILIS.

Shell suborbicular, depressed, concentrically ploughed with numerous regular shallow furrows; front margins obscurely bisinuate; beak recurved, truncated by a large foramen. Lon. 16, lat. 14, alt. 7 lines.

Terebratula arabilis, *Forbes*, 1846, *Trans. Geol. Soc.* vii. pt. 3. pl. 138. f. 12.

D'Orb. Prod. ii. p. 258.

Local. Chalk. S. India.

TEREBRATULA INCA.

B.M.

Shell orbicular, depressed, smooth; lines of growth very obscure, except near the margin; valves nearly equally convex, slightly bisinuate in front; beak short, recurved, obscurely angled at the sides; foramen large and circular; deltidium wide and short. Lon. 21, lat. 20½, alt. 12 lines.

Terebratula Inca, *Forbes*, 1846, in *Darwin's Geol. S. Amer.* p. 268. pl. 5. f. 19, 20.

Local. Cretaceous limestone. Iquique, Peru.

TEREBRATULA LONGA.

B.M.

Shell elongated, elliptical, smooth; margins even, slightly notched in front; dorsal valve depressed, pointed at the umbo, slightly truncated in front; ventral valve convex; beak produced, curved, keeled; foramen rather large; deltidium distinct, solid. Lon. 16, lat. 9, alt. 7 lines.

Terebratula longa, *Zieten*, 1830, *Petr.* p. 52. pl. 39. f. 7.

D'Orb. Prod. i. p. 344.

Terebratula bicipitata, *Bronn*, *Index*, p. 1241 (not Sow.).

Terebratula lagenalis, *Braun* (not *Schl.*).

Local. Coral Rag. Wurtemberg; Bavaria; Switzerland.

TEREBRATULA INSIGNIS.

B.M.

Shell oval, smooth; front margin angularly raised; dorsal valve much flattened from the umbo to the front margin; beak

produced, recurved; foramen large; deltidium distinct, in a piece; loop simple, short. Lon. 20, lat. 15, alt. 11 lines. (M. lon. 3, lat. 2. unc.)

Terebratula insignis (Schübler), Zieten, 1830, *Verst. Würt.* p. 1 pl. 40. f. 1.

D'Orb. Prod. i. p. 376.

Quenstedt, Flöz. Würt. p. 484.

Davidson, Mon. Ool. p. 47. pl. 13. f. 1.

Quenst. Handb. p. 472. t. 38. f. 1.

Terebratula perovalis, Buch, *Mém. Soc. Géol. France.*

Pusch, Polens Pal. p. 22. t. 4. f. 5, 7, 8 (not Sow.).

Terebratula biplicata, Bronn, *Index*, ii. p. 1239 (not Sow.).

Fossil. *Coralline Oolite, Oxford Clay.* England; France; G many.

45. TEREBRATULA BISUFFARCINATA. B

Shell oval, smooth; margins bisinuated in front; dorsal w convex, depressed at the sides; beak thick, rounded and recurv Lon. 22, lat. 16, alt. 12 lines.

Terebratulites bisuffarcinatus, Schl. 1820, *Petr.* no. 50. p. 2 Enc. *Méth.* t. 239. f. 3.

Terebratula bisuffarcinata, Zieten, *Verst. Würt.* p. 53. pl. 40. f.

Terebratulites bicanaliculatus, Schl. 1813, *Min. Tasch.* p. 1 (name only); 1820, *Petref.* p. 278. no. 49?

Terebratula bicanaliculata, Zieten, p. 54. pl. 40. f. 5?

D'Orb. Prod. i. p. 344 (excl. synonyms).

Terebratula ovalis, Val. 1819, in *Lam. Hist. An. sans Vert.*?

Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 16.

Fossil. *White Jura (Coral Rag).* Germany; France; India?

46. ? TEREBRATULA REPELINIANA.

Shell oblong; beak of the larger valve much produced.

Terebratula Repeliniana, *D'Orb.* 1850, *Prod.* ii. p. 25.

Fossil. *Coral Rag.* France.

47. ? TEREBRATULA SUBSELLA. I

Shell like *T. perovalis*, but broader, and more deeply plain

Terebratula subsella, Leymerie, 1846, *Stat. de l'Aube*, pl. 10.

Fossil. *Kim. Clay and Coral Rag.* France.

48. ? TEREBRATULA EQUESTRIS.

Shell like *T. subsella*, but with the larger valve produced front, forming a single, prominent, obtuse angle.

Tratula equestris, *D'Orb.* 1850, *Prod.* ii. p. 24.

i. *Coral Rag.* France.

TEREBRATULA BAUGIERI.

Shell small, the size of a pea, oval, very globular, obtuse and ded in front, larger valve with two projections, not forming "s."

Tratula Baugieri, *D'Orb.* 1850, *Prod.* i. p. 377.

il. *Oxford Clay.* France.

TEREBRATULA GARANTIANA.

Like *T. biplicata*, but with the two plaits close together; it is broader, and wants the radiating striæ."

Tratula Garantiana, *D'Orb. Prod.* i. 1850, p. 287.

il. *Inferior Oolite.* France.

TEREBRATULA DESCHAMPSII.

Shell like *T. biplicata*, but with the middle plait so deep as form a notch (sillon) in the front of the larger valve."

Tratula Deschampsii, *D'Orb. Prod.* 1850, p. 287.

il. *Inferior Oolite.* France.

TEREBRATULA ERINA.

Like *T. biplicata*, but shorter, more ventricose, the anterior narrower."

Tratula Erina, *D'Orb.* 1847, *Prod.* i. p. 240.

il. *Lias.* Normandy.

TEREBRATULA MACEANA.

Shell small, globular, round, furnished with a deep sinus in the small valve to receive the projection of the other.

Tratula Maceana, *D'Orb.* 1847, *Prod.* i. p. 221.

il. *Lias.* France.

? TEREBRATULA ORBICULATA.

Shell orbicular, smooth; dorsal valve rather flat; ventral valve convex; beak short, thick; foramen large and round; deltidium small, distinct. Lon. 12, lat. 12, alt. 6 lines.

Tratula orbiculata, *Ræmer*, 1836, *Nordd. Ool.* p. 52. t. 2. f. 6.

il. *Coral Rag.* Saxony.

Terebratula subventricosa, *D'Orb. Prod.* p. 287.
Terebratula perovalis, *Ræmer, Nordd. Ool. t. 2.*
Fossil. *Inferior Oolite.* Germany; France.

56. TEREBRATULA INTERMEDIA.

Shell oval, smooth; front with a central and
distinct depressions; beak short, rounded, recurved,
large; deltidium nearly concealed; loop simple,
lat. 18, alt. 13 lines.

Terebratula intermedia, *Sow. 1812, Min. Con.*
f. 8.

Davidson, Mon. Ool. p. 52. pl. 11. f. 1-5.

Quenstedt, 1851, Handb. p. 472. t. 37. p. 5
and *Mantell*).

Terebratula biplicata, *Pusch, Polens Pal.* p. 21.
Fossil. *Cornbrash.* England; France.

57. TEREBRATULA MAXILLATA.

Shell subquadrangular, smooth; valves strong
front; dorsal valve broad and short, moderately
central and two lateral depressions, increasing in
beak produced, recurved, with obtuse lateral
large, oblique; deltidium obtusely triangular; l

TEREBRATULA GLOBATA.

B.M.

Shell oval, ventricose, smooth; front with a central and two lateral depressions; beak rounded, recurved; foramen moderate, produced; deltidium concealed, small; loop simple, short. Lon. 13, lat. 11, alt. 10 lines.

Longer and less globular. Cotteswolde Hills.

Terebratula globata, Sow. 1825, *Min. Con.* p. 51. pl. 436. f. 1.

Davidson, *Mon. Ool.* p. 54. pl. 13. f. 2-7.

Terebratula Kleinii, *Morris, Desh., D'Orb., Bronn* (not Lamarck).

Terebratula biplicata, *Pusch, Polens Pal.* p. 21. t. 4. f. 3?

Localities. *Inferior Oolite.* S. of England; France.

TEREBRATULA PHILLIPSII.

B.M.

Shell oblong, elongated, tapering towards the beak, smooth; front strongly biplicate; beak produced; foramen moderate, produced; deltidium large and distinct. Lon. 28, lat. 20, alt. 13 lines.

Terebratula Phillipsii, *Morris*, 1847, *Ann. Nat. Hist.* p. 255. pl. 18. f. 9.

D'Orb. Prod. i. p. 287.

Davidson, *Mon. Ool.* p. 53. pl. 11. f. 6-8.

Localities. *Inferior Oolite.* England; France.

TEREBRATULA PEROVALIS.

B.M.

Shell oval, elongated, smooth; front margin with a central and lateral depressions, or with a nearly straight central elevation and angular lateral depressions; beak large, rounded, with indistinct lateral ridges; foramen large, entire; deltidium generally concealed; loop simple, short. Lon. 33, lat. 28, alt. 23 lines (see specimen).

Terebratula perovalis, Sow. 1825, *Min. Con.* v. p. 51. t. 436. f. 2, 3.

Buch, Mém. Soc. Géol. France, iii. p. 221. pl. 20. f. 2.

Davidson, *Mon. Ool.* p. 51. pl. 10. f. 1-6.

Quenst. Handb. p. 471. t. 37. f. 49-51.

Terebratula ovoidea (of Collectors).

Terebratula Kleinii, *Valenciennes?*, 1819.

Localities. *Inferior Oolite.* England; France.

TEREBRATULA KLEINII.

Shell oval, depressed, with two blunt projecting angles in front; surface smooth, or with only fine lines of growth; margins bisinuated in front; beak large and thick, recurved, strongly keeled at the tip; foramen large and round; deltidium nearly concealed. Lon. 30, lat. 26 lines.

flat, circular; ventral valve convex; beak very obscurely keeled; foramen very large; deltidium lat. 16, alt. 9 lines.

Terebratula omalogaster (Hehl.), Zieten, 1830, (deformed?, *D'Orb.*).

Terebratula perovalis, Bronn, *Index*, p. 1243.

Fossil. *Inferior Oolite*. Germany.

63. TEREBRATULA SIMPLEX.

Shell roundish, smooth; margins even; dors a little concave in front; larger valve ventricose recurved; foramen large and round; deltidium Lon. $2\frac{4}{12}$, lat. $2\frac{1}{12}$, alt. $1\frac{5}{12}$ inches.

Terebratula triangularis maxima, Llhwyd, 1699, t. 25. f. 870.

Terebratula simplex, Buckman, *Geol. Chelt.* pl.

Davidson, *Mon. Ool.* p. 48. pl. 8. f. 1, 3.

Terebratula lata, *D'Orb.* (not *Sow.*).

Fossil. *Inferior Oolite*. England.

64. TEREBRATULA OVOIDES.

Shell oval, smooth, ventricose; margins even; slightly keeled; foramen large and round; double. Lon. 2, lat. $1\frac{1}{2}$, alt. $\frac{1}{2}$ inches.

d; front margin a little raised. Lon. 18, lat. 11, alt. 8

teratula Buckmanii, *Dav. Mon. Ool.* i. p. 44. pl. 7. f. 15, 16.

l. *Inferior Oolite*. Cheltenham.

TEREBRATULA PUNCTATA.

B.M.

shell oval, depressed, smooth; small valve rather flat; front margin a little raised; beak small, slightly recurved, with evanescent ridges; foramen moderate; deltidium double; loop simple, nearly half as long as the dorsal valve. Lon. 16, lat. 12, alt. 7 lines.

teratula punctata, *Sow.* 1812, *Min. Con.* i. p. 46. t. 15. f. 4.

Morris, Catal. 136.

Davidson, Mon. Ool. p. 45. pl. 6. f. 1-6.

l. *Lias*. England.

TEREBRATULA SUBPUNCTATA.

B.M.

shell smooth, oval, ventricose; margin slightly raised in front; dorsal valve rounded, recurved, with lateral ridges soon becoming indistinct; foramen rather large; deltidium concealed; loop a little more than one-third the length of the shell. Lon. 28, lat. 20, alt. 7 lines.

teratula subpunctata, *Dav. Mon. Ool.* p. 46. pl. 6. f. 7-10.

l. *Lias*. Somerset; France.

TEREBRATULA INDENTATA.

B.M.

shell elliptical, smooth; front margin sometimes notched when young; valves nearly equally convex; beak recurved, lateral ridges distinct; foramen entire; loop simple, short. Lon. 14, lat. 10, alt. 10 lines (largest specimen).

teratula indentata, *Sow.* 1825, *Min. Con.* v. p. 65. t. 445.

Davidson, Mon. Ool. p. 46. pl. 5. f. 25, 26.

teratula digona, *D'Orb. Prod.* p. 315 (part.), not *Sow.*

teratula punctata, var. (*Waterhouse, in Brit. Mus.*).

l. *Lias*. England.

TEREBRATULA EUGENII.

shell oval, obtuse in front, tapering to the beak; smooth, with fine radiating lines at the sides; dorsal valve ventricose, slightly convex near the umbo; ventral valve curved, flattened and wedged in the middle; beak long and pointed; foramen moderate; deltidium elongated, double. Lon. 16, lat. 11, alt. 8

Terebratula Eugeniei (Buch), Davidson, 1849, *Bull. Soc. G.* vii. p. 74. pl. 1. f. 16-20.

Fossil. *Lias*. Normandy.

70. *TEREBRATULA MARSUPIALIS*.

Shell oblong, smooth, with obscure lines of growth; valve convex, depressed at the sides; ventral valve deep; beak small, recurved, keeled; foramen minute. Lon. 1 alt. 6 lines.

Terebratulites marsupialis, Schl. 1820, *Petr.* p. 282?, *En.* t. 240. f. 3?

Terebratula marsupialis, Zieten, 1830, *Würt.* p. 53. pl. 1. f. 1. *D'Orb. Prod.* i. p. 221.

Terebratula lagenalis, Bronn, *Index*, p. 1241 (not Schl.)

Fossil. *Lias*. France; Wurtemberg.

Coral Rag?. Bavaria.

71. *TEREBRATULA BULLATA*.

Shell oblong, inflated, smooth; margins obscurely beak in front; valves nearly equally gibbose; beak much closely recurved, keeled; foramen small; deltidium complete; loop short, simple. Lon. 15, lat. 12, alt. 12 lines.

Terebratula bullata, Sow. 1825, *Min. Con.* v. p. 49. t. 4. *Lam. ed. Desh.* vii. p. 362.

Buch, Mém. Soc. Géol. Fr. iii. p. 195. pl. 18. f. 8.

Zieten, Verst. Würt. t. 40. f. 6.

Deslong. 1837, *Soc. Lin. Normandie.*

Morris, Cat. p. 132.

Bronn, Index, p. 1231 (excl. *syn.*).

Terebratula sphaeroidalis, var., Davidson, *Mon. Ool.* p. 50. f. 10, 14-19.

Fossil. *Inferior Oolite*. S. of England; Germany; France.

72. ?*TEREBRATULA GALLIENNEI*.

Like *T. bullata*, but more oval; beak less curved; larva advanced at two distant points, without much projecting.

Terebratula Galliennei, *D'Orb.* 1850, *Prod.* i. p. 377.

Fossil. *Oxford Clay*. France.

73. *TEREBRATULA SPHÆROIDALIS*.

Shell subcircular, ventricose, smooth; margins even in young shell, usually crenulated in old specimens, especially front; borders obtuse, or flattened; beak rounded, curved.

ate; deltidium triangular, concave; loop short, simple.
 at. 12, alt. 10 lines.

a sphaeroidalis, *Sow.* 1825, *Min. Con.* v. p. 49. t. 435.

ng. 1837, *Soc. Lin. Normand.*

s, *Cat.* p. 136.

b. *Prod.* i. p. 287.

Mon. Ool. p. 56. pl. 11. f. 9, 11, 12, 13.

ferior *Oolite.* England; France; Germany.

BRATULA FIMBRIA.

B.M.

bicular, smooth when young; margins more or less
 en adult; plications rounded, numerous, often sub-
 eak short, recurved, nearly concealing the deltidium;
 rge and round; loop simple, short. Lon. 20, lat. 18,
 s.

a fimbria, *Sow.* 1823, *Min. Con.* iv. p. 27. t. 326.

lson, *Mon. Ool.* p. 61. pl. 12. f. 6-12.

ferior *Oolite.* Gloucestershire; France (Sarthe).

BRATULA PLICATA.

B.M.

ongated, oval, smooth when young; margins more or
 l when adult; plaits short, simple, rounded; umbo of
 e gibbose; larger valve with a short, scarcely recurved
 amen round; deltidium small; loop short, simple.
 at. 22, alt. 17 lines.

a plicata, *Buckman*, 1845, *Geol. Chelt.* pl. 7. f. 6.

lson, *Mon. Ool.* p. 60. pl. 12. f. 1-5 (not *Lam.*).

la subplicatella, *D'Orb.* 1849, *Prod.* i. p. 287.

ferior *Oolite.* England; France.

BRATULA SUBORBICULARIS.

B.M.

val, inflated, smooth at the umbones, rather sharply
 ind the border; beak laterally compressed, thick, curved,
 by a rather large foramen. Lon. 8, lat. 6, alt. 4½ lines.

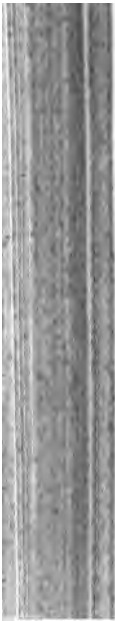
la suborbicularis, *Münst.* 1841, *Beitr.* iv. p. 56. pl. 6.

b. *Prod.* i. p. 204.

la semiplicata, *Klipstein*, 1844, *Beitr.* p. 214. pl. 15. f. 3.

ella! semiplicata, *D'Orb.* *Prod.* i. p. 203.

ias. Tyrol.



Terebratula fiabellum, *Defr.* 1828, *Dict. Sc. Nat.* liii.
Morris & Dav. Ann. Nat. Hist. 1847, p. 256. pl.
D'Orb. Prod. i. p. 316.

Dav. Mon. Ool. p. 62. pl. 12. f. 19-21.

Terebratula palmetta, *Deslongchamps*, 1837, *Soc. mandie.*

Bronn, Index, p. 1244.

Terebratula septemcostata, *Münster, MS.*

Fossil. *Bath Oolite (Bradford Clay)*. England; Fra

78. TEREBRATULA MOREANA.

Shell trigonally ovate, depressed, smooth; margin sinuated; beak prominent, laterally keeled; foramen round; deltidium small, triangular; dorsal valve with central elevated fold and two obscure lateral ridges. lat. 11, alt. 7 lines.

Terebratula Moreana, *D'Orb. Ter. Crét.* iv. p. 79. t. 506
Prod. ii. p. 58.

Fossil. *Neocomian*. France.

79. TEREBRATULA BENTLEYI.

Shell somewhat pentagonal, smooth; dorsal valve truncated or indented in front, with a central and elevations; ventral valve deep, with beak prominent and keeled; foramen moderate; deltidium double

furrow; beak recurved, thick, rounded; foramen moderate. Lon. and lat. 6, alt. 4 lines.

Brachiatula subcanalis, Münster, in *Cambridge Museum*.

Oxford Clay. Bavaria.

TEREBRATULA COARCTATA.

B.M.

T. coarctata somewhat pentagonal, ornamented with radiating spinularia, decussated by numerous lines of growth; dorsal valve small, with an angular median ridge and more or less distinct transverse furrows; front straight or indented; ventral valve deep, with a prominent beak; foramen moderate, round; deltidium small; loop short, simple. Lon. 12, lat. 11, alt. 8 lines.

T. coarctata, Park, 1811, *Org. Rem.* iii. pl. 16. f. 5.

Sw. 1823, *Min. Con.* iv. p. 7. t. 312. f. 1-4.

Bronn, *Index*, ii. p. 1232.

D'Orb. Prod. i. p. 316.

Davidson, *Mon. Ool.* p. 59. pl. 12. f. 12-15.

Müenst. Handb. p. 465. t. 37. f. 21.

T. reticulata, Smith, 1816, *Org. Foss.* p. 83. pl. 30. f. 10.

Sw. 1823, *Min. Con.* t. 312. f. 5-6 (et decussata).

Deslong. Soc. L. Norm.

Müenst. Handb. p. 464. t. 37. f. 20.

T. decussata, Val. in Lam. 1819, *An. sans Vert.* vi. p. 51; *Enc. Méth.* t. 245. f. 4.

Dav. Ann. Nat. Hist. June 1850, pl. 14. f. 51.

T. reticularis, Schloth. *Petref.* i. p. 269.

Murch. *Mém. Soc. Géol. France*, p. 185. pl. 17. f. 7.

T. reticularis. *Bath Oolite* (*Bradford Clay*). England; France.

TEREBRATULA RICHARDIANA.

T. richardiana like *T. reticulata*, but much narrower, more elongated, and strongly reticulated.

T. richardiana, *D'Orb. Prod.* i. p. 377.

Oxford Clay. France.

TEREBRATULA MORIEREI.

T. morierei pentagonal, deeply indented in front; valves ornamented with concentric, imbricated ridges, both deeply furrowed in the middle; beak rather short, recurved, laterally keeled; foramen moderate, round; deltidium distinct. Lon. 9, lat. 8, alt. 6 lines.

T. morierei (*Deslongchamps, MS.*), *Davidson*, April 2, *Ann. Nat. Hist.* pl. 14. f. 3.

Inferior Oolite. Normandy.

84. TEREBRATULA ANTIPLECTA.

Shell obovate, ventricose, smooth; margin strongly sin in front; dorsal valve convex, with two front and two later pressions; ventral valve with three depressions in front; not prominent; foramen minute; deltidium double, trian Lon. 8, lat. 7, alt. 5 lines.

Terebratula antiplecta, *Buch*, 1834, *Ueber Ter.* 80. t. 2. 1

Mém. Soc. Géol. Fr. 1838-39, t. 111. p. 187, pl. 17. f. 8.

Bronn, Index, p. 1229.

Quenst. 1851, *Handb.* p. 465.

Fossil. *Jura* (*Alpenkalk?*). Near Salzburg, Tyrol.

85. TEREBRATULA INVERSA.

Shell pentagonal, deeply folded, smooth; margins at 3-plaited; dorsal valve flat near the umbo, with two deep furrows in front; ventral valve with a central and two depressions; beak small. Lon. & lat. 6, alt. 3½ lines.

Terebratula inversa, *Quenstedt*, 1851, *Handb.* p. 465. t. 37

Fossil. *Trias* (*Alpenkalk*). Hallstadt.

86. TEREBRATULA REFLEXA.

Shell small, subpentagonal, tumid, smooth; dorsal valve depressed in front, with a small longitudinal ridge in the n ventral valve with two longitudinal rounded ridges divide small central furrow, sides depressed; beak small, curved; ture minute; area very wide. Lon. 4, lat. 4, alt. 2½ lines

Terebratula reflexa, *Koninck*, 1844, *Descr.* p. 298. pl. 20.

D'Orb. Prod. i. p. 151.

Fossil. *Carb.* Belgium.

87? TEREBRATULA NUCLEATA.

Shell subcircular, smooth, with a deep, rounded sinus centre of the dorsal valve in front; ventral valve with a dorsal ridge; beak very prominent, inflated, recurved; f moderate; deltidium concealed; loop very small. Lon. 8 alt. 6 lines.

Terebratula nucleata, *Schlotheim*, 1820, *Petr.* p. 281.

Buch, Mém. Soc. Géol. Fr. iii. pl. 20. f. 10.

Zieten, 1830, *Petref.* p. 53. pl. 39. f. 10.

Quenst. Handb. p. 469. t. 37. f. 40-45.

Fossil. *Coral Rag.* Germany; France.

TEREBRATULA TRIQUETRA.

B.M.

Shell triangular, smooth, depressed, truncated in front, the valves produced and rounded; sides nearly straight; beak obtuse, curved, keeled; foramen moderate, round; deltidium nearly sealed. Lon. 17, lat. in front 18 lines.

Terebratula pileus, (*Brug.*) *E. M.* t. 241. f. 1. a, b, c.

Bronn, Index, p. 1245.

Terebratula triquetra, *Parkinson*, 1811, *Org. Rem.* iii. pl. 16. f. 8.

D'Orb. Prod. i. p. 344.

Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 21.

Terebratula triangulus, *Val.* 1819, in *Lam. An. s. Vert.* no. 21.

Terebratula mutica, *Catullo*, 1830, *Geogn. Zool.* xxii. t. 2. f. 4.

sil. Kelloway Rock? France (*Gigondas*).

TEREBRATULA DIPHYA.

B.M.

Shell smooth, triangular, depressed, gibbose at the margins; when young two-lobed, the lobes coalescing in the adult, leaving a roundish opening (about 3 lines in diameter) through the center of both valves; from this opening a sharp furrow passes to the outer margin of each valve; margins even; sides slightly hollowed; front indented in the middle; angles rounded; beak adducted and recurved; foramen moderate, round; loop?. Lon. lat. 20, alt. 9 lines.

Terebratula diphya, *F. Colonna*, 1606, *Ecphras. Stirp.* 36. 49.

Terebratula diphya, *Buch, Ueber Terebrateln*, p. 88. t. 1. f. 12;

Ann. Soc. Géol. France, iii. p. 196. pl. 18. f. 9.

Pusch, Polens Pal. 15. t. 3. f. 13.

Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 20.

Quenst. Handb. p. 470. t. 37. f. 46.

Terebratula deltoidea, *Valenciennes*, 1819, in *Lam. Hist. Nat.*

Brug. Enc. Méth. 1797, t. ii. pl. 240. f. 4.

Terebratula triquetra, *Parkinson* (part.), *Org. Rem.* iii. 229. t. 16.

4, 8.

Terebratula antinomia, *Catullo*, 1827, *Cat. Zool.* 169. t. 5;

Geogn. Zool. t. 2. f. 3.

Terebratula Duvallii, *Newman*, 1844, *Zoologist*, p. 679 (figures).

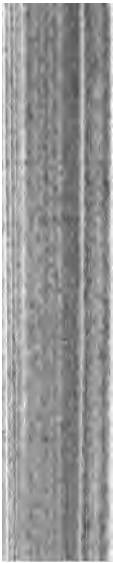
Terebratula diphya (*Link*), *King*, 1840, *Permian Fossils*, pp. 81, 144.

sil. Kelloway Rock? France.

TEREBRATULA DIPHYOÏDES.

B.M.

Shell smooth, depressed, expanded, triangular, perforated in the middle; valves unequal, the ventral most convex; beak adducted with two dorsal ridges; foramen moderate, round. Lon. lat. 25, alt. 11 lines.



ribs, occasionally a small fifth rib in the mesial furrow furnished with a prominent cardinal process having on each side; ventral valve with two distinct or three central and two lateral ribs; beak small, laterally curved, truncated by a minute apical foramen; are triangular, bounded by prominent beak-ridges; dorsal, sunk. Lon. 5, lat. 5, alt. $3\frac{1}{2}$ lines.

Terebratula quadriplecta, *Münst.* 1841, *Beitr. Petrol.* pl. 6. f. 9, 10.

Terebratula quadricostata, *Braun*, 1841, *Id.* pl. 9. f.

Terebratula contraplecta, *Braun*, 1841, *Id.* pl. 9. f. 2

Rhynchonella quadriplecta et contraplecta, *D'Orb.*

i. p. 203 (erroneous).

Spirigera quadricostata, *D'Orb.* *Id.* p. 204.

Fossil. *Trias.* St. Cassian, Tyrol.

92. TEREBRATULA ? TRICOSTATA.

Shell suborbicular, depressed, trilobed, smooth; with a prominent middle lobe bounded by shallow furrows; ventral valve with a deep central and obscure lateral furrow; beak small, acute; foramen minute. Lon. 3, lat. 3, alt.

Terebratula tricostata, *Münst.* 1841, *Beitr.* iv. p. 57.

Terebratula triplecta, *Klipstein*, *MS.*

Spirigera tricostata, *D'Orb. Prod. in p. 204*

la bipartita, *Münst.* 1841, *Beitr.* iv. p. 60. pl. 6. f. 11.

la subbipartita, *D'Orb. Prod.* i. p. 204.

la Waterhousii, *Klipstein, MS.* (not *Dav.*).

ias. Tyrol.

BRATULA ? BRONNII.

B.M.

oval, broadly ovate, tumid, depressed at the sides, smooth, broad mesial fold, and three obscure lateral folds on each valve undulated; beak prominent, rounded, recurved, situated on an internal median septum. Lon. $4\frac{1}{2}$, lat. 4, alt. 5.

la Bronnii, *Klipst.* 1845, *Beitr.* p. 215. pl. 15. f. 13.

la Cassiana, *D'Orb. Prod.* i. p. 204.

ias. Tyrol.

BRATULA ? WISMANNI.

B.M.

suborbicular, depressed, smooth; front margins slightly beak inconspicuous, truncated by a small foramen. Lon. 5, alt. $2\frac{1}{2}$ lines.

la Wismanni, *Münst.* 1841, *Beitr.* iv. p. 64. pl. 6. f. 18.

ib. Prod. i. p. 204.

la Buchii, *Klipst.* 1844, *Beitr.* p. 218. pl. 15. f. 2.

la salinaria, *D'Orb.* 1849, *Prod.* i. p. 204.

ias. Tyrol.

BRATULA ? SUBCURVATA.

B.M.

suborbicular, trilobed, smooth; dorsal valve with a proesial ridge and depressed sides; ventral valve with a mesial furrow, much depressed in front; beak small, protruded by a small foramen. Lon. and lat. $3\frac{1}{2}$, alt. 2.

la subcurvata, *Münst.* 1841, *Beitr.* iv. p. 63. pl. 6. f. 17.

ib. Prod. i. p. 204.

la Buchii, var., *Klipstein.*

ias. Tyrol.

BRATULA ? MÜNSTERII.

B.M.

oval, depressed, smooth, with numerous lines of growth on the margin; dorsal valve slightly trilobed, prominent in the middle, depressed at the sides; beak thick, rounded, recurved, situated on a rather large foramen. Lon. 10, lat. 9 lines.

la Münsterii, *D'Orb. Prod.* i. p. 204.

la vulgaris, *Münst. Beitr.* iv. p. 61. pl. 6. f. 12 (not

Terebratulites complanatus, *Schl.* 1816, *Denksch. Akad.*
p. 27. t. 7. f. 12-14? (not *Brocchi*).

Fossil. *Trias.* Tyrol.

98. *TEREBRATULA ? ÆQUALIS.*

Shell orbicular, smooth; valves equally and regularly
margins even; beak thick, prominent, rounded, recurve
men moderate, round. Lon. 7, lat. $6\frac{1}{2}$, alt. 4 lines.

Terebratula æqualis, *Klipst. Beitr.* 1844, p. 223. pl. 15.

D'Orb. Prod. i. p. 204.

Fossil. *Trias.* Tyrol.

99. *TEREBRATULA ? HEMISPHEROIDICA.*

Shell suborbicular, depressed, truncated in front, wide
the hinge-line, smooth, with obscure lines of growth in
margin; dorsal valve convex near the umbo, depressed
sides; margins even; beak small, prominent, truncated by
foramen; indications of a long internal septum in the
valve. Lon. 4, lat. $4\frac{1}{2}$, alt. $2\frac{1}{2}$ lines.

Terebratula hemisphaeroidica, *Klipst.* 1844, *Beitr.* p. 222
f. 10.

Fossil. *Trias.* Tyrol.

100. *TEREBRATULA ? HASTINGSIÆ.*

Shell small, oblong, ventricose, smooth; front mar-
g slightly elevated; beak small, prominent, recurved, r
truncated by a minute foramen. Lon. 4, lat. 3, alt. $2\frac{1}{2}$.

Terebratula Hastingsiæ, *Klipst. MS.*

Fossil. *Trias.* St. Cassian.

101. *TEREBRATULA ? PENTAGONALIS.*

Shell small, oblong, ventricose, smooth; ventral valve
sinuated in front; beak small, recurved.

Terebratula pentagonalis, *Klipstein*, 1844, *Beitr.* p. 22
f. 12, enlarged (not *Phil.* = *T. caput-serpentis*!).

Terebratula subpentagonalis, *D'Orb. Prod.* i. p. 204.

Terebratula Hastingsiæ, *Klipst. MS. ?*

Fossil. *Trias.* Tyrol.

102. *TEREBRATULA ELONGATA.*

Shell oblong, depressed, smooth, rather contracted
casted in front; dorsal valve flattened longitudinally.

pressed at the sides; ventral valve with a shallow longitudinal sinus; beak prominent, slightly curved; foramen moderate, complete, round; loop short and simple. Lon. 13, lat. 9, alt. 6 lines.

Terebratulites elongatus, *Schl.* 1816, *Denkschriften Akad. Münch.* vi. p. 27. pl. 7. f. 7-9.

Terebratula elongata, *King*, *Permian Foss.* p. 147. pl. 6. f. 30-45.
Geinitz, *Zech.* p. 4. pl. 4. f. 27-36.

Vern. Russ. p. 66. pl. 9. f. 9.

Münst. 1841, *Beitr.* iv. p. 62. pl. 6. f. 14?

Buch, 1834, *Ueber Terebrateln*, p. 100; 1838, *Mém. Soc. Géol.* Fr. iii. p. 211. pl. 19. f. 10.

Terebratula plicata, *Kutorga*, 1842, *Ib.* pl. 5. f. 11.

Terebratula canidea, *Geinitz*, 1846, *Grundriss*, p. 507.

Terebratula subelongata, *D'Orb.* 1847, *Prod.* i. p. 168.

Fossil. *Permian.* Germany; England; Russia.

Devonian. Boulonnais (*Bouchar*).

103. TEREBRATULA QUALENII.

Shell elongated, depressed, widest in the middle, contracted at each end, smooth; dorsal valve with an elevated central ridge, sides depressed; ventral valve sinuated in front; beak prominent, rounded, recurved; foramen small. Lon. 10, lat. 7, alt. 4 lines.

Terebratula Qualenii (*Fisch.*), *Kutorga*, 1842, *Verh. Kaiserl. Petersb.* p. 26. pl. 6. f. 2.

D'Orb. Prod. i. p. 168.

Fossil. *Permian.* Russia.

104. TEREBRATULA SUFFLATA.

B.M.

Shell broadly ovate, obtuse or slightly indented in front, depressed, smooth; valves moderately convex; margins even, sinuated in front; ventral valve with a medial sinus; beak short, rounded, recurved; foramen moderate. Lon. 8, lat. 7, alt. 4½ lines.

Terebratula sufflata, *Schl.* 1816, *Akad. Münch.* vi. p. 27. pl. 7. f. 10, 11; *Mem. Acad. Bavière*, 1817, pl. 7. f. 10.

Buch, *Mém. Soc. Géol. France*, iii. p. 213. pl. 19. f. 12 bis.

Murch. Geol. Russ. i. p. 222.

Münster, *Beitr.* iv. p. 63. pl. 6. f. 15?

King, *Permian Fossils*, p. 149. pl. 7. f. 1-9.

Terebratula inflata, *Schl. Petref.* p. 617.

Buch, *Ueber Terebrateln*, p. 102.

Terebratula subsufflata, *D'Orb.* 1849, *Prod.* i. p. 204?

Fossil. *Permian.* Germany; England; Russia.

Trias? Tyrol.

105. TEREBRATULA SACculus.

B.M.

Shell oblong, with a straight or emarginate front, which is sometimes elevated, and almost always defined by two broad, obtuse ridges, proceeding a short distance on the shell, on each side of a mesial broad shallow groove; beak prominent, incurved.

Anomites sacculus, *Martin*, 1809, *Petref.* t. 46. f. 1, 2.

Terebratula sacculus, *Koninck*, *Descr.* p. 293. pl. 20. f. 3.

D'Orb. Prod. i. p. 151.

Fossil. *Carb.* Britain; Belgium; Russia.

106. TEREBRATULA HASTATA.

B.M.

Shell elliptical, subrhomboidal, rather depressed; front truncated and indented; edges sharp; beak thick, slightly recurved; foramen small; loop short, simple. Lon. 19, lat. 15, alt. 11 lines.

Terebratula hastata, *Sow.* 1824, *Min. Con.* v. p. 66. t. 446. f. 2, 3.

Phil. Geol. Yorks. ii. pl. 12. f. 1; *Pal. Foss.* p. 91. pl. 35. f. 168?

Ræmer, *Nordd. Ool.* p. 48.

Fossil. *Carb.* Britain; Belgium.

107. TEREBRATULA FUSIFORMIS.

Shell smooth, much elongated, fusiform, inflated, contracte at each end; valves equally convex; margins even; beak pointed recurved; foramen small, apical?; deltidium distinct?. Lon. 11 lat. 5½, alt. 4 lines.

Terebratula fusiformis, *Vern.* 1845, *Russ.* p. 65. pl. 9. f. 8.

D'Orb. Prod. i. p. 151.

Fossil. *Carb.* Russia.

108. TEREBRATULA ? LACRYMA.

Shell subglobose, smooth, oblong; front straight, or slightly waved, scarcely raised except at the edge, which is deeply notched by the projection of the inferior valve, the central furrow of which is broad, flat, and bounded by two sharpish ridges; beak not prominent. Lon. 5, lat. 4½, alt. 4 lines.

Atrypa lacryma, *Sow. Geol. Trans.* 2nd ser. v. pl. 56. f. 9.

Fossil. *Devonian.* England.

109. TEREBRATULA ? JUVENIS.

B.

"*Shell* broad ovate, depressed, smooth, contracted toward front; larger valve remarkably incurved at the minute, later angulated beak. In full-grown specimens the side margin

ulated, and the front is rather depressed in the middle."
 Lon. 7, lat. 7, alt. 4 lines.

Terebratula juvenis, Sowerby, *Geol. Trans.* 2nd ser. v. pl. 56. f. 8.
Phil. 1841, *Pal. Foss.* pl. 35. f. 165.

D'Orb. Prod. i. p. 100.

sil. Devonian. Britain.

2. TEREBRATULA VIRGO.

Shell ovato-lanceolate, uniformly convex; beak prominent;
 ventral margin contracted, nearly straight; surface beautifully re-
 ticulated, and marked by a few faint, longitudinal striæ. Lon. 8,
 lat. 5½ lines.

Terebratula virgo, *Phil. Pal. Foss.* p. 91. pl. 35. f. 167.

sil. Devonian. England.

3. TEREBRATULA CAÏQUA.

Shell much elongated, elliptical; valves equally ventricose,
 smooth, or with a few striæ of growth; beak inflated, much re-
 curved, and touching the other valve; foramen round, mode-
 rate; deltidium concealed; front straight. Lon. $2\frac{5}{12}$, lat. $1\frac{7}{12}$,
 alt. $1\frac{5}{12}$ unc.

Terebratula caïqua, *Vern. & Arch.* 1842, *Trans. Geol. Soc.* 2nd ser.
 v. pl. 35. f. 1.

D'Orb. Prod. i. p. 100.

Terebratula amygdalina, *Goldf. Bonn. Mus.*

sil. Devonian. Paffrath, Prussia.

4. TEREBRATULA BORDINI.

Shell subpentagonal, smooth, very finely punctate; edges
 sharp; margins even; ventral valve rather more convex than the
 dorsal; beak recurved, its summit perforated by a small round
 foramen; deltidium distinct. Lon. 10, lat. 9, alt. 4 lines.

Terebratula Bordini, *Vern.* 1850, *Bull. Soc. Géol. Fr.* t. 7. p. 36.
 pl. 1. f. 8.

sil. Devonian. Spain.

5. TEREBRATULA SCHULZII.

Shell much elongated, smooth; borders sharp; front margins
 quite even; ventral valve most convex; beak acute, perforated
 by a small foramen, below which is an elongated deltidium.
 Lon. 9, lat. 5, alt. 3 lines.

Terebratula Schulzii, *Vern.* 1850, *Bull. Soc. Géol. Fr.* v. p. 37.
 pl. 1. f. 7.

sil. Devonian. Spain.

114. TEREBRATULA ARCHIACI.

Shell subcircular, depressed, smooth; edges sharp; margins even; ventral valve rather more convex than dorsal; beak slightly curved; foramen apical, minute; deltidium triangular; interior of dorsal valve with a cardinal process, dental pits, and elongated adductor impressions. Lon. 26, lat. 25, alt. $9\frac{1}{2}$ lines.

Terebratula Archiaci, Verneuil, 1850, *Bull. Soc. Géol. Fr. t. v.* p. 40. pl. 2. f. 2.

Fossil. Devonian. Asturias.

115. TEREBRATULA HAIMEANA.

Shell circular, depressed, smooth, with obscure lines of growth; valves nearly equally convex; margins even; beak obtuse, laterally keeled, recurved, truncated by a small round foramen; deltidium nearly concealed, solid. Lon. 28, lat. 30, alt. 16 lines.

Terebratula Haimeana, Dav. April 1852, *Ann. Nat. Hist.* pl. 14. 11.

Fossil. Devonian. Prussia.

2. TEREBRATULINA.

Shell finely striated; valve auriculate; beak straight; deltidium usually rudimentary; foramen incomplete; loop short, rendered annular by the union of the oral processes (fig. 4).

Terebratulæ striatæ, Morris, 1846, *Journ. Geol. Soc.* p. 385.

Terebratulina (caput-serpentis), D'Orb. 1848, *Ann. Sc. Nat.* viii. 67.

Dav. 1852, *Ann. Nat. Hist.* p. 365; *Mon. Cret.* p. 34.

Terebratulæ annuliferæ, Quenstedt, 1851, *Handbuch*, p. 462.

Terebratulina caput-serpentis.

Fig. 4.



Fig. 5.

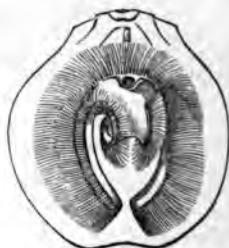


Fig. 4.—Dorsal valve of a young specimen in which the oral processes are yet completely developed.

Fig. 5.—Shell with the animal; the intestine is seen projecting above the aperture and fringe. The oesophagus passes through the annular part of the

REBRATULINA CAPUT-SERPENTIS.

B.M.

ell ovate, subpentagonal, tapering at the beak, slightly truncated in front, whitish, ornamented with fine, bifurcating, granular ribs; beak nearly straight; foramen rather large, incompletely oblique; deltidia rudimentary, disunited; valves eared; short, one-third the length of the shell, not reflected, oral masses united. Lon. 12, lat. 10 lines.

caput-serpentis, Linn. 1767, *Syst. Nat.* ed. 12. 1153.

Born, *Mus.* 119. t. 6. f. 13.

Chemnitz, viii. 103. t. 78. f. 712; xi. 248. t. 203. f. 2013, 2014.

Gmelin, *S. N.* 3344.

Dillw. *Index Test.* pl. 2. f. 22.

Poli, *Test. Sicil.* ii. 192. t. 30. f. 15 y.

Philippi, *Moll. Sicil.* i. 94. t. 6. f. 5; ii. 66.

bratulina Caput serpentis, D'Orb. *Ann. Sci. Nat.* 1848, viii. t. 7. f. 7, 8, 17.

bratulina cornea, D'Orb. 1848, *Ann. Sci. Nat.* viii. t. 7. f. 9,

bratulina pubescens, L. *Syst. Nat.* 1152; Gmelin, *S. N.* 3344.

Dillw. *R. S.* 293.

Schröter, *Einl. Conch.* iii. p. 397. pl. 9. f. 10.

bratula pubescens, Retz. *N. Gen.* 15?

Müller, *Z. Dan. Prod.* 249. no. 3007.

bratula, Lamk. *E. M.* t. 241. f. 2; "t. 246. f. 7, opt." Lamk.

Gründler, 1774, *Naturforscher*, p. 84. t. 111, animal.

bratulina retusa, L. *Syst. N.* 12. p. 1151; *Fauna Suecica*, ed. 2. 521.

Dillw. *Recent Shells*, i. p. 292.

bratula caput-serpentis, Lamk. *Hist.* vi. 247; *ed. Desh.* vii. 2.

Sow. *Gen.* f. 2; *Thes. Conch.* vii. 343. t. 68. f. 1-4; t. 72. f. 116.

Kuster, *Conch. C.* vii. 22. t. 1. f. 15, 16; t. 2. f. 16, 17.

Blainv. *D. S. N.* liii. 139.

Phil. *Moll. Sicil.* i. p. 94. pl. 6. f. 4, 5.

Forbes & Hanley, *Brit. Moll.* pl. 56. f. 1-4.

Myris spatula, Menke, *Syn.* ed. 2. 96.

bratulina aurita, Linn. *S. N.* 1151? Gmelin, 3342.

bratulina aurita, Fleming, *Phil. Zool.* ii. p. 498. pl. 4. f. 5; *it. An.* p. 369.

bratulina costata, Lowe, *Zool. Journ.* ii. 105. t. 5. f. 8, 9.

Desh. in Lamk. Hist. ed. 2. vii. 351.

bratulina striata, Leach, *Brit. Moll.* t. 13. f. 1, 2.

D

Terebratula Gervillii, *S. Wood, Mag. Nat. Hist.* v. p. 253.
Hab. N. Britain; Norway; Mediterranean. At 10-50 fathoms.
 Fossil. *Miocene*. Gibraltar (Jas. Smith, F.R.S.); Turin.
Pliocene. Suffolk (S. V. Wood).

2. TEREBRATULINA SEPTENTRIONALIS.

Shell ovate, whitish, radiately costellated with very slender bifurcating, roughish ribs; beak obtuse; foramen large, incomplete; deltidia rudimentary; loop two-fifths the length of shell, anelliform. Lon. 9, lat. 7, alt. 5 lines.

Terebratula septentrionalis, *Couthouy*.

G. B. Sowerby, Thes. Conch. vii. 344. t. 57. f. 5, 6.

Hab. Massachusetts.

3. TEREBRATULINA JAPONICA.

Shell oblong, thin, whitish, radiately striated; striae numerous bifurcating; sides rather flattened near the hinge; beak truncated by a moderate, incomplete, very oblique foramen; deltidia obsolete; loop small, anelliform. Lon. 13, lat. 9 lines.

Terebratula Japonica, *G. B. Sowerby, Thes. Conch.* vii. 344. t. 57. f. 7, 8.

Adams & Reeve, Zool. Samarang, p. 71. pl. 21. f. 1?

Hab. Japan. (Mus. Cuming.)

4. TEREBRATULINA ANGUSTA.

Shell elongate-oval, slightly compressed, pellucid white, etc. and very finely costellated longitudinally; ribs rough; loop truncated; valves nearly equal, slightly furrowed in the middle; front margin a little sinuated. Lon. 11, lat. 7 lines.

Terebratula angusta, *Adams & Reeve*, 1850, *Zool. Samarang*, p. 71. pl. 21. f. 2.

Terebratulina caput-serpentis, var.?

Hab. Seas of Japan.

5. TEREBRATULINA CANCELLATA.

Shell ovate-oblong, ventricose, brownish; striae very slender, close-set, decussated by fine lines of growth; dorsal valve rather flat; ventral valve convex; foramen large, complete; deltidia large, united; loop short. Lon. 10, lat. 7, alt. 5 lines.

Terebratula cancellata, *Koch*.

Kuster, Conch. C. vii. t. 2 b. f. 11, 12, 13.

Sow. Thes. Conch. vii. 358. t. 71. f. 93.

Hab. —? (Mus. Cuming.)

ATULINA ABYSSICOLA.

l-elongated, tapering to the beak and a little truncated, pale flesh-colour, radiated with obscure, bifurcate-beak produced; foramen moderate, entire; dorsal slight central depression. Lon. 8, lat. 7 lines.

abyssicola, *Adams & Reeve*, 1850, *Zool. Samarang*, 21. f. 5.

abyssicola, *Dav.* May 1852, *Ann. Nat. Hist.* p. 366. of Good Hope; at 120 fathoms.

ATULINA CUMINGII.

mute, somewhat pentagonal, gibbous, yellowish white, with very numerous, minute, elevated, radiating and g striæ; valves with very small ears; beak small, truncated by a round, incomplete foramen; deltidia margins slightly sinuated in front; loop anelliform. t. 3, alt. 2 lines.

na Cumingii, *Dav.* May 1852, *Ann. Nat. Hist.* p. 366; *ol. Soc.* p. . pl. . f. 17-19.
ese Seas. (Mus. Cuming.)

ATULINA STRIATULA.

B.M.

l, slightly produced at the beak, depressed; minutely striæ unequal, bifurcating and intercalating, 80-90 at; margin slightly flexuous; beak truncated by a complete foramen; deltidia small; auricles indistinct. t. 8, alt. 4 lines.

striatula, *Sow.* 1829 (in part., not *T. striatula*, *Mant.*), t. vi. p. 69. t. 536. f. 5 (not 3, 4).

na striatula, *Dav. Mon. Tertiary Brach.* p. 14. pl. 1.

ene. England.

ATULINA TENUISTRIATA.

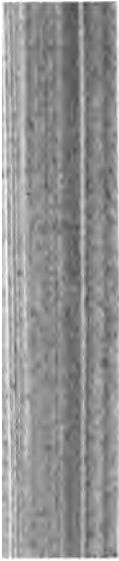
all, oval, depressed, ornamented with radiating, gra-riæ; beak prominent, acute; foramen small, entire; double, complete. Lon. 5, lat. 4, alt. 2 lines.

tenuistriata, *Leym.* 1846, *Mém. Soc. Géol. France*, i. pl. 15. f. 11.

h. *Mém. Soc. Géol. France*, 2nd ser. t. ii. p. 214. pl. 7. 4.

Defranci, *Leym. id.* pl. 15. f. 12 (not *Brongn.*).

ene. France.



11. TEREBRATULINA ? VENEI.

Shell oval, gibbous, ornamented with concentric liræ and radiately striated; striæ not numerous, regular furcating; valves nearly equally convex; beak prominent; foramen small, round; deltidium conspicuous, double. Lat. $4\frac{1}{2}$, alt. $3\frac{1}{2}$ lines.

Terebratula Venei, *Leym.* 1846, *Mém. Soc. Géol.* 1 p. 362. pl. 15. f. 10.

Fossil. *Eocene.* France.

12. TEREBRATULINA MULTISTRIATA.

Shell ovate, subpentagonal, depressed; ornamented with radiating striæ crossed by numerous lines of growth; nuchal line slightly arched in front; dorsal valve rather flat, the sides; ventral valve convex; beak large and thick, truncated by a large round foramen; deltidium triangular. Lat. 26, alt. 12 lines.

Terebratula multistriata, *Dunker*, 1847, *Beitr.* p. 128.

Fossil. *Tertiary.* Ravensberg.

13. TEREBRATULINA STRIATA.

- Desh. Lam. ed. 2. vii. p. 360.*
Geinitz, Petr. Kreid. pl. 16. f. 12.
D'Orb. in Murch. Russia, ii. p. 463. pl. 43. f. 18-20.
Reuss, Bohem. Kreid. p. 49. pl. 26. f. 2.
Dixon, Geol. Sussex, pl. 27. f. 21.
Ræmer, Kreid. p. 40.
bratula DeFrancii, Brongn. 1822, Env. Paris, p. 383. pl. 3. 6.
Nilsson, Petr. Suec. p. 35. pl. 4. f. 7.
Buch, Mém. Soc. Géol. France, p. 165. pl. 16. f. 8.
Hisinger, Leth. Suec. p. 78. t. 22. f. 10.
Ræmer, Nord. Kreid. p. 40.
Dalman, Vet. Acad. 1848, p. 136.
bratula scabra, Fischer, 1830-7, Oryct. Moscow & Fôss. Gouv. Mosc. 1809, pl. 2. f. 1, 2 (indeterminable).
bratula pentagonalis, Phil. 1825, Geol. Yorks. i. pl. 1. f. 17 (founded on a specimen partly imbedded in chalk).

rag—

- bratula chrysalis, Schlotheim, 1813, in Leonhard's Min. zsch. vol. vii. (ref. to Faujas, Mt. S. Pierre, Maestricht, pl. 26. 7, 9.)*
Schl. Petref. 1820, p. 39.
Buch, Mém. Soc. Géol. France, pl. 16. f. 9.
Bronn, Leth. Geog. p. 651. pl. 30. f. 6.
Reuss, Bohem. Kreid. p. 49. pl. 26. f. 3.
Dav. Lond. Geol. Journ. i. pl. 18. f. 18-20.
Dunker, Palæont. p. 56.
Ræmer, Kreid. p. 40.
bratula tenuissima, Schl. 1813, Leonh. Min. Taschen. vii.
bratula Gervillii, DeFrance, 1828, Dict. Sc. Nat. liii. p. 157.
Woodward, Geol. Norf. t. 6. f. 14.
bratula Faujasii, Ræmer, Kreid. p. 40. t. 7. f. 8.
Reuss, Kreid. p. 50. pl. 26. f. 4.
bratula auriculata, Ræmer, Kreid. p. 39. t. 7. f. 9.
D'Orb. Prod. ii. p. 173.
bratulina microscopica, Alth, 1849, in Haid. Abhandl. 1850, 257. t. 13. f. 7.
il. Chalk, Upper Greensand, Speeton Clay. England; France; Belgium; Germany; Russia.

TEREBRATULINA GISII.

shell minute, trigonal, rounded in front, with 11-15 simple rounded and granulated ribs; dorsal valve with large ears. *Length*, 3 lines.

chotomous, strongly granulated; beak prominent. Lon. $2\frac{1}{2}$ lines.

Terebratulina Dutempleana, *D'Orb.* 1847, *Pl.* 504. f. 1-8.

Terebratulina elegans, *D'Orb.* 1850, *Prod.* ii.
Terebratulina striata, *Wahl.* (young?)

Fossil. *Chalk.* France.

16. TEREBRATULINA GUADALUPÆ.

Shell small, ovate-orbicular, inflated, radiate, fine, smooth, close, bifurcated; dorsal valve eared; ventral valve more convex; beak produced; foramen large, complete. Lon. 4, lat.

Terebratula Guadalupæ, *Ræmer*, 1852, *Kreid.* f. 3.

Fossil. *Chalk.* Guadalupe.

17. TEREBRATULINA CAMPANIENSIS.

Shell ovate-oblong, depressed, triangular, ribs granulated, entire, with smaller ribs disposed in spaces; beak angular; front nearly straight; 5 lines.

Terebratulina Campaniensis, *D'Orb.* 1847, *T.* t. 502. f. 13.

TEREBRATULINA BIAURICULATA.

Shell angularly ovate, depressed, radiately ribbed; ribs elevated, angular, irregularly fasciculated; beak tapering; front canted; ears short. Lon. 4 lines.

Terbratulina auriculata, *D'Orb.* 1847, *Ter. Crét.* iv. p. 58.

. 502. f. 3-7 (not *Ræmer*).

Terbratulina biauriculata, *D'Orb. Prod.* ii. p. 85.

Terbratulina striata, *Wahl.* var.?

sil. *Neocomian.* France.

TEREBRATULINA FLORIDANA.

Shell subpentagonal, with obscure radiating striæ; valves strongly biciplicated; beak produced, straight; foramen small. Lon. 7½, lat. 6½ lines.

Terbratula Floridana, *Morton*, 1834, *Syn. Cret.* p. 72. pl. 16. f. 7.

Terbratulina Floridana, *D'Orb. Prod.* ii. p. 258.

sil. *Chalk.* Alabama, U.S.

TEREBRATULINA GRACILIS.

Shell orbicular, striated; dorsal valve flat or concave; ventral valve convex; beak small, recurved; foramen small; deltidium mentary; ears small; striæ fine, very variable in number (50), granulated, augmenting in number by the intercalation of smaller ribs towards the margin. Lon. 5½, lat. 5, alt. 2 lines.

Terbratulites gracilis, *Schl.* 1813, *Leonh. Min. Tasch.* vii. p. 112.

3. f. 3; *Petref.* p. 270. no. 35, 1820.

Terbratula gracilis, *Schl.* 1832, *Petref.*

Buch, Mém. Soc. Géol. France, 1st ser. iii. p. 167. pl. 16. f. 11.

Geinitz, Petref. Kreid. pl. 16. f. 13; *Grundriss Verst.* pl. 21. f. 10.

Reuss, Bohem. Kreid. p. 49. pl. 26. f. 1, pl. 42. f. 24.

Puggaard, Bull. Soc. Géol. France, vii. p. 534.

Quenst. Handb. p. 462. t. 37. f. 8, 9.

Terbratulina gracilis, *D'Orb. in Murch. Russia*, ii. p. 499. pl. 43. 24-26; *Ter. Crét.* iv. p. 61. t. 503. f. 1-6.

Dav. Mon. Cret. p. 38. pl. 2. f. 13-16.

Terbratula ornata, *Ræmer*, 1840, *Nord. Kreid.* p. 40. no. 26. 7. f. 10.

Terbratulina ornata, *D'Orb. Prod.* ii. p. 258.

Terbratula rigida, *Sowerby*, 1829, *Min. Con.* vi. p. 69. pl. 536. f. 2.

Dav. Mon. Cret. pl. 2. f. 17.

sil. *Chalk.* England; Belgium; France; Germany; Russia.

TEREBRATULINA ? BOURGEOISII.

Shell minute, orbicular, depressed, radiately striated; striæ thin, curved, diverging towards the sides; ventral valve con-

vev; dorsal valve flat; beak small; foramen minute; loop—?
Lon. 4, lat. 4 lines.

Terebratella Bourgeoisii, *D'Orb.* 1847, *Ter. Crét.* iv. p. 124. t. 518.
f. 10-16.

Terebratulina gracilis, *Schl.* var. ?

Fossil. *Chalk.* France.

23. *TEREBRATULINA? ECHINULATA.*

Shell ovate-oblong, depressed, closely radiately striated; striae slightly prickly; margins bisinuated in front; foramen round, complete; deltidium solid, concave. Lon. 18, lat. 13, alt. 9 lines.

Terebratula echinulata, *Dujardin*, 1836, *Mém. Soc. Géol. France.*
ii. p. 223. f. 222.

Terebratulina echinulata, *D'Orb. Ter. Crét.* iv. 63. t. 503. f. 7-11.
Fossil. *Chalk.* France.

24. *TEREBRATULINA SANTONENSIS.*

Shell oval, depressed, radiately ribbed; ribs granulose, curved, diverging towards the sides; ventral valve convex; area very small; foramen small; dorsal valve nearly flat. Lon. 9 lines.

Terebratula Santonensis, *D'Arch.* 1837, *Mém. Soc. Géol. France.*
ii. p. 181. pl. 13. f. 14.

Terebratella Santonensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 123.
t. 518. f. 5-9.

Fossil. *Chalk.* France.

25. *TEREBRATULINA PARRACENA.*

Shell rounded; not truncated in front.

Terebratulina parracena, (*Talavignes*) *D'Orb. Prod.* ii. p. 308.

Fossil. *U. Chalk.* France.

26. *TEREBRATULINA MEGATREMA.*

Bristol Mus.

Shell "moderately convex, transversely obovate, with a few distinct ribs; the beak is large and produced, with a very large perforation." Lon. 3, lat. 3 lines.

Terebratula megatrema, *J. Sow.* 1836, *Geol. Trans.* iv. p. 242
& 343. pl. 18. f. 3.

D'Orb. Prod. ii. p. 172.

Fossil. *U. Greensand.* England.

27. *TEREBRATULINA SUBSTRIATA.*

B.M.

Shell oval or subpentagonal, radiately striated; striae unequal, very fine, dichotomous, crossed by frequent lines of growth

out slightly elevated; sides depressed; beak short, tapering; ramens large, incomplete; deltidia large, separate; loop small, unilar. Lon. 10, lat. 10, alt. 4 lines.

Crebratulina substriata, *Schl.* 1820, *Petr.* p. 283.

Buch, Ter. 60.

D'Orb. Prod. i. p. 377.

Quenst. Handb. p. 461. t. 37. f. 6, 7.

Crebratulina striatula, *Zieten*, 1830, *Würt.* p. 59. pl. 44. f. 2 (not *Mantell*).

Crebratulina substriata, *Davidson*, *Ann. Nat. Hist.*

Fossil. Oxford Clay. France; Germany.

3. WALDHEIMIA.

Shell: foramen complete; loop elongated and reflected; median septum of the smaller valve elongated.

Waldheimia (australis), *King*, 1849, *Permian Fossils*, p. 81.

Crebratulæ with long loops, *Dav.* 1852, *Ann. Nat. Hist.* p. 364.

Crebratulæ cinctæ et carinatae (part.), *Buch.*

The extent of the septum may be readily ascertained in fossil species by a little acid, without injuring the specimens.

The sections into which *Waldheimia* has been grouped depend entirely upon modifications of external form.

Waldheimia flavescens.

Fig. 6.

Fig. 7.



Fig. 6.—Interior of dorsal valve with the animal.

Fig. 7.—Section of both valves with the animal; the muscles of the peduncle are not represented.

a, a', adductor muscle; *f*, retractor muscle; *p*, peduncle; *f'*, cardinal process; *z*, dental sockets; *m*, mouth; *v*, position of intestine.

a. Beak round; valves convex, smooth, or slightly plaited.

1. WALDHEIMIA FLAVESCENS.

B.

Shell oval, rather produced at the beak, gibbous, smooth when young, border of the adult more or less strongly furrowed with unequal, radiating folds; front slightly truncated; colour yellowish, or horny brown; beak short and thick, not much curved; foramen rather large, complete; deltidium large; loop elongated, reflected; margins at first even, afterwards more or less dentated. Lon. 17, lat. 14, alt. 8 lines.

Terebratula flavescens, Lamk. Hist. 1819, ed. 2. vii. 330.

Terebratula australis, Quoy & Gaim. 1834, Voy. Astrol. v. 5. t. 85. f. 1-5.

Sow. Thes. Conch. vii. 349. t. 69. f. 25-33.

Woodward, Manual, p. 8. f. 4, 5.

Terebratula dentata, Lamk. Hist. ed. 2. vii. 331.

Delessert, Icon. t. 18. f. 4.

Var. *Terebratula recurva, Quoy & Gaim. 1834, Voy. Astrol.* v. 5. *Sow. Thes. Conch.* vii. 350. t. 69. f. 34, 35, 36.

Hab. Australia, Sydney, just below low-water-mark.

2. WALDHEIMIA LENTICULARIS.

B

Shell orbicular, smooth, red; margins even; beak small, curved; foramen small; deltidium conspicuous; loop elongated, reflected. Lon. 24, lat. 22, alt. 14 lines.

Terebratula lenticularis, Deshayes, Mag. Zool. 1841, t. 41.

G. B. Sow. Thes. Conch. vii. 360. t. 72. f. 108, 109, 11

Dav. Ann. Nat. Hist. May 1852, p. 365.

Hab. New Zealand, Strait of Fauveau, at 15 fathoms.

Fossil. In a modern deposit of New Zealand.

3. WALDHEIMIA CRANIUM.

F

Shell ovate, front margin sometimes a little truncated, smooth, pale, translucent; beak reflected; foramen large, incomplete; deltidian plates narrow, widely separated; loop reflected, third as long as the shell. Lon. 24, lat. 19.5, alt. 14 mil.

Petiver, Gaz. t. 93. f. 19.

Anomia cranium, Gmelin, S. N. 3247.

Dillw. R. S. i. 294.

Anomia obsoleta, Solander, MSS.

Anomia vitrea, Chemnitz, viii. 97. t. 78. f. 707-709.

Terebratula cranium, Müller, Zool. Dan. Prod. 247.

Sow. Thes. Conch. vii. 354. t. 70. f. 60, 61, 62.

Lovén, Moll. Scand. p. 29.

Hab. Norway; Finmark; eastward of Bressay, Leland, in water.

VALDHEIMIA SEPTIGERA.

Shell white, thin, subpellucid, tumid, smooth, ovate-triangular, canted in front, and slightly biplicate; foramen large, round; idium entire; loop reflected, rather long (three-quarters as long as the shell); smaller valve with a raised median septum. — 28, lat. 21·5, alt. 17 mill.

Terebratula septigera, Lovén, 1846, *Index Moll. Scand.* p. 29.
— Norway; Finmark.

VALDHEIMIA GLOBOSA.

Shell ovate, ventricose, smooth, whitish; margins even, slightly canted in front; beak thick, slightly reflected, truncated; foramen large, nearly complete; deltidia large, disunited; dorsal valve with a broad, indistinct mesial ridge; loop reflected, two-thirds the length of the shell (*Sowerby*). Lon. 20, lat. 16, alt. 15 lines.

Terebratula globosa, Lamk. *Hist.* 1819, ed. 2. vii. 330.
Blainv. Man. Malac. t. 52. f. 2.
Sow. Thes. Conch. vii. 359. t. 71. f. 99, 100, 101.
Terebratula, Lamk. *E. M.* t. 239. f. 2.
? (Mus. Cuming.)

VALDHEIMIA PICTA.

B.M.

Shell ovate, rather narrowed in front and at the beak, smooth, orange-red, ornamented with irregular pale rays; margins even; beak recurved; foramen small, entire; deltidia narrow, elongated; loop elongated, recurved. Lon. 12, lat. 10, alt. ? lines.
Valdheimia picta, Chemnitz, *Conch. C.* xi. 247. t. 203. f. 2011, 2012.
Valdheimia cranium, var., *Dillw. R. S.* 295.

Terebratula picta, *Sow. Thes. Conch.* vii. 351. t. 70. f. 43, 44.
Terebratula rubella, G. B. *Sow. Thes. Conch.* vii. 350. t. 69. 40-42.
? Java.

VALDHEIMIA DILATATA.

B.M.

Shell suborbicular, gibbous, horny; margins even; beak thick, rather tapering, with obtuse lateral ridges; foramen large, incomplete; deltidia large, separate; loop elongated, reflected. Lon. lat. 18, alt. ? lines.

Terebratula dilatata, Lamk. *Hist.* ed. 2. vii. 330.
Sow. Thes. Conch. vii. 352. t. 70. f. 48, 49.
Blainv. D. S. N. liii. 135. 1828.
Terebratula Gaudichaudi, *Blainv. D. S. N.* liii. 136, 1828.
Straits of Magellan.

U. D. Sow. Proc. Acad. Nat. Sci. Philad.
Dav. Ann. Nat. Hist. May 1852, p. 364.
Hab. California.

9. WALDHEIMIA PATAGONICA.

Shell oval, smooth; valves nearly equally developed, ventral valve produced, slightly curved, thick, truncated by a large foramen; deltidium large elongated and reflected. Lon. 16, lat. 13, alt. 9

Terebratula Patagonica, Sow. 1846, in *Darwin*
p. 252, pl. 2. f. 26, 27.

D'Orb. Prod. iii. p. 134.

Fossil. Miocene. Patagonia.

b. Beak laterally keeled; valves convex, with costae or prominences.

Terebratulæ cinctæ, Buch.

Quenstedt (part.), *Handb.* p. 465.

10. WALDHEIMIA ACULEATA.

Shell pentagonal, with four corresponding ridges very prominent, narrow, radiating from the center, produced beyond the margins of the valves: in

VALDHEIMIA MULTICOSTATA.

B.M.

Shell suborbicular, ornamented with 6-11 corresponding ribs; radiating, prominent, rounded, projecting beyond the margin or six extending to the umbo, the rest intercalated; dorsal valve convex, margins straight; beak short, scarcely curved, inflated by a moderate-sized foramen. Lon. 6, lat. 6, alt. 4

Valdheimia multicostata, *Klipst.* 1844, *Beitr.* p. 216. pl. 15. f. 5. *D'Orb. Prod.* i. p. 204.

.. *Trias.* Tyrol.

VALDHEIMIA ? QUINQUECOSTATA.

B.M.

Shell trigonal, ornamented with five radiating, corresponding ribs very prominent, rounded, projecting beyond the margin; interspaces narrow, flat; beak small, prominent, laterally compressed. Lon. 3, lat. $2\frac{1}{2}$ lines (*Münster*).

Valdheimia quinquecostata, *Münst.* 1841, *Beitr.* iv. p. 59. pl. 6. f. 1.

Valdheimia quinquecostata et crista-galli, *D'Orb. Prod.* i. p. 204.

Valdheimia crista-galli, *Klipstein*, 1844, *Beitr.* p. 217. pl. 15. f. 9. (Dorsal valve only: lon. $3\frac{1}{2}$, lat. $4\frac{1}{2}$ lines.)

.. *Trias.* St. Cassian.

VALDHEIMIA ? FLEXUOSA.

B.M.

Shell obovate, depressed, smooth at the umbones, bordered by numerous, unequal, corresponding ribs, those at the sides being long and projecting beyond the margin; front obtuse or slightly truncated; beak prominent, laterally compressed; area of dorsal valve rounded, apical. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt. 3 lines.

Valdheimia flexuosa, *Münst.* 1841, *Beitr.* iv. p. 59. pl. 6. f. 8.

Klipstein, t. 15. f. 4.

Valdheimia flexuosa, *D'Orb. Prod.* i. p. 203.

.. *Trias.* St. Cassian, Tyrol.

VALDHEIMIA CELTICA.

B.M.

Shell oblong, elongated, smooth, slightly truncated in front; dorsal valve even; dorsal valve inflated near the umbo, depressed in front; ventral valve convex; beak slightly produced, not much inflated, keeled; foramen moderate; deltidium obtusely triangular; loop elongated, reflected. Lon. 18, lat. 9, alt. 8

Murch. Russia, ii. p. 401. pl. 42. f. 33, 34.
D'Orb. Prod. 1850, p. 344 & 377.
Terebratula vulgaris, *Fischer*, 1843, *Bull. Nat.*
(not *Schl.*).
Terebratula ornithocephala, *Id.* p. 27. pl. 4. f.
Fossil. *Kelloway Rock?* France.
Oxford Clay. Russia.

23. WALDHEIMIA STROGONOFII.

Shell oval, elongated, slightly truncated in front; smooth; margins even; ventral valve most convex; beak short, rather recurved; foramen moderate, circular; deltidium concealed. Lon. 28, lat. 17, alt. 14 lines.

Terebratula Strogonofii, *D'Orb.* 1845, *Murch.*
pl. 42. f. 31, 32; *Prod.* i. p. 377.

Fossil. *Oxford Clay.* Russia.

24. WALDHEIMIA OBOVATA.

Shell oval, truncated in front, with obscurely ventricose; beak short, rather recurved, with shallow ridges; deltidium more or less concealed; loop small. Lon. 15, lat. 13, alt. 10 lines.

Terebratula obovata, *Sow.* 1812, *Min. Con.* i. p. 17.
Davidson, Mon. Ool. p. 39. pl. 5. f. 14-17.

Fossil. *Bath Oolite (Cornbrash).* England; I

bratula umbonella, Val. 1819, in *Lam. An. s. Vert.*
Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 18.

il. *Cornbrash*. England; France; Germany.

WALDHEIMIA SUBLAGENALIS.

B.M.

shell smooth, oblong, ventricose; front margin wide, truncated, slightly indented; beak rounded, recurved; valves slightly splayed in the middle, in front, with rounded lateral ridges and sinuate angles. Lon. 15, lat. 8, alt. 9 lines.

bratula sublagenalis (Ræmer?, 1836, *Verst. Nordd. Ool.* p. 49),
av. Mon. Ool. Brach. p. 42. pl. 7. f. 14.

il. *Cornbrash*. England; France.

(*Lias*. Germany; Willershausen.)

WALDHEIMIA ORNITHOCEPHALA.

shell smooth, rhombic-ovate, becoming elongated and ventricose with age, rather narrow and truncated in front; beak rounded and recurved; foramen moderate; deltidium concealed; simple, elongated. Lon. 16, lat. 11, alt. 10 lines.

nyd, Lith. Brit. pl. 10. f. 873.

bratula ornithocephala, Sow. 1812, *Min. Con.* i. p. 227. t. 101. 2, 3, 4.

Smith, Strat. Syst. 1816.

Lam. ed. Desh. vii. p. 361.

Phil. Geol. Yorks. i. t. 6. f. 7.

Zieten, Würt. t. 39. f. 2.

Davidson, Mon. Ool. p. 40. pl. 7. f. 6, 13, 23.

Ræmer, Nordd. Ool. p. 51.

Pusch, Polens Pal. p. 19. t. 3. f. 17.

bratula lampas, Sow. *Min. Con.* p. 228 (cast).

D'Orb. Prod. i. p. 239.

bratula subovalis et subovoides, Ræmer, *Ool.* pl. 2. f. 9, 10?

bratula triquetra, Sow. *Min. Con.* v. p. 65. t. 445. f. 1 (not Ræmer, *Nordd. Ool.* p. 48).

bratula subtriquetra, *D'Orb. Prod.* i. p. 216.

il. *Kelloway Rock--Fuller's Earth*. England; France; Germany.

WALDHEIMIA IGNACIANA.

shell oval-oblong, slightly convex, smooth, truncated in front; lateral valve deep; beak short, recurved; foramen moderate. Lon. 16, lat. 11, alt. 8 lines.

bratula Ignaciana, *D'Orb.* 1842, *Pal. Amer. Merid.* p. 63. 22. f. 14, 15; *Prod.* i. p. 221.

l. *Lias*. Chili.

Davidson, Mon. Ool. p. 55. pl. 13. f. 8.
Terebratula bullata, syn., Buch, Mém. Soc. C
p. 195.

Morris, Cat. p. 132.

Bronn, Index Pal. ii. p. 1231.

Fossil. *Coralline Oolite. Malton, Yorkshire.*

30. WALDHEIMIA SUBOVOÏDES.

Shell ovate, smooth; valves convex, slight
front; beak small, recurved; foramen small, n
distinct. Lon. 14, lat. 11, alt. 8 lines.

Terebratula subovoïdes (Münster), Braun, Bair.

Ræmer, Nordd. Ool. p. 50. t. 2. f. 9.

Bronn, Index, p. 1252.

Terebratula subovalis, Ræmer, 1836, Nordd. Oo
(according to Bronn, Index, p. 1252).

Fossil. *Lias. Germany.*

31. ? WALDHEIMIA SARTHACENSIS.

Terebratula Sarthacensis, D'Orb. Prod. 1850 (T
Sow. pl. 101. f. 5?).

Fossil. *Lias (Upper). France.*

DHEIMIA NUMISMALIS.

B.M.

pressed, somewhat pentagonal, smooth, with distant striæ; both valves with a sinus in front; beak short, bramen minute; deltidium wide and short; loop elongated. Lon. and lat. 11-13, alt. 4-6 lines.

a numismalis, *Val. in Lamk.* 1819, *Hist.* vii. 334. n. 17.

Encyc. Méth. t. 240. f. 1.

Mon. Tereb. 84. n. 4.

E. M. iii. 2028. n. 18.

i., *Petref.* t. 39. f. 4.

lson, *Mon. Ool.* p. 27. pl. 5. f. 1-3.

er, *Nordd. Ool.* p. 47.

st. Handb. p. 467. t. 37. f. 32, 33.

a orbicularis (*Schlotheim*), *Zieten*, *Petref. Würt.* t. 39.

a *Cor*, *Val. in Lam. Hist. Nat.*

Ann. Nat. Hist. June 1850, pl. 15. f. 22.

a pentagona, *Münster*, in *Cambridge Museum?*

a quadrifida, *Quenst. Handb.* p. 467. t. 37. f. 28.

as. Britain; France; Wurtemberg.

DHEIMIA QUADRIFIDA.

B.M.

rounder than long, somewhat pentagonal, depressed, pro-
truding angles in front; valves with corresponding ridges
and depressions; beak small, with acute lateral ridges; foramen
double, deltidium double, obtuse; loop elongated, reflected.
Lon. and lat. 18, alt. 7 lines.

a quadrifida, *Val. in Lam.* 1819, *An. sans Vert.* vi. p. 35.

Mém. Soc. Géol. France, iii. p. 190. pl. 17. f. 3.

lson, *Mon. Ool.* p. 28. pl. 3. f. 8-10; *Ann. Nat. Hist.*

June 1850, pl. 14. f. 35.

as (Marlstone). England; France.

DHEIMIA CAUSONIANA.

like *T. cornuta*, but always much wider, and the two pro-
truding angles of the pallial region wider apart.

a Causonia, *D'Orb.* 1847, *Prod.* i. p. 221.

as. France.

DHEIMIA CORNUTA.

B.M.

beak sharp and shining, irregularly pentagonal, longer than
valves, both valves equally convex, deeply indented in front, with cor-
responding projections and depressions; beak large, recurved,
with acute lateral ridges; foramen moderate; deltidium double;

loop simple, nearly reaching the front margin. Lon. 20, lat. 13, alt. 12 lines.

Terebratula cornuta, Sow. *Min. Con.* 1825, v. p. 66. pl. 446. f. 4.
Davidson, Mon. Ool. p. 29. pl. 3. f. 11-18.

Terebratula vicinalis, Buch, 1838, *Mém. Soc. Géol. France*, ii, p. 192. pl. 17. f. 5 (not *Schloth.*).
Ræmer, Nordd. Ool. p. 47.

Fossil. *Lias*. England; France; Germany.

38. WALDHEIMIA BIDENTATA.

Shell small, oblong, ventricose, contracted and indented in front; valves smooth, each with a deep mesial furrow in front; dorsal valve inflated; beak very small, keeled; foramen minute. Lon. 7, lat. 4, alt. 4 lines.

Terebratula bidentata, Zieten, 1830, p. 59. pl. 44. f. 3 (not *His.*).
Terebratula sub-bidentata, *D'Orb. Prod.* i. p. 288.

Fossil. *Inferior Oolite*. Germany.

39. WALDHEIMIA VICINALIS.

B.M.

Shell trigonal or oval, truncated and indented in front, smooth; valves equally convex, each with a shallow sinus in front, between very obtuse corresponding ridges; edges thick, obtuse; margins quite even; beak small, recurved, sharply keeled at the sides; foramen minute; loop elongated, reflected. Lon. 11, lat. 9, alt. 6½ lines.

Terebratula vicinalis, *Schl.* 1820, *Petref.* p. 281*.

Buch, Mém. Soc. Géol. France, iii. p. 192 (excl. plate).

Terebratula digona, Zieten, pl. 39. f. 8? (not *Sow.*).

Terebratula cornuta, *Ræmer* (not *Sow.*).

Terebratula numismalis δ, *Quenst. Handb.* p. 467. t. 37. f. 26.

Fossil. *Lias*. Wurtemberg.

40. WALDHEIMIA REHMANNI.

Shell widely ovate, or subpentagonal, truncated and slightly indented in front, rounded at the sides, ventricose, smooth; beak small, recurved, sharply keeled; foramen minute; deltidium triangular, solid. Lon. 10, lat. 9, alt. 6 lines.

Terebratula Rehmanni (*Buch*), *Ræmer*, 1839, *Nordd. Ool.* p. 21. t. 18. f. 11.

Fossil. *Lias*. Saxony.

* The reference made by Schlotheim to Parkinson, iii. 16. f. 4, shows that he did not intend the shell afterwards named *T. cornuta* by Sowerby.

ALDHEIMIA FISCHERIANA.

B.M.

l oblong, truncated and indented in front, smooth; edges obtuse; margins even; ventral valve gibbose; beak short, and, laterally keeled; foramen small, round; deltidium triangular. Lon. 4 lines (*D'Orb.*). Lon. 11, lat. 8, alt. 6 Brit. Mus.).

atula Fischeriana, *D'Orb.* 1845, *Murch. Russia*, ii. p. 482. 2. f. 27-30; *Prod.* i. p. 377.

atula digona, *Zieten, Würt.* p. 53. pl. 39. f. 8 (*D'Orb.*).
ischer, *Oryct. Moscow*, pl. 23. f. 7 (not *Sow.*).

atula indentata, *Fischer, Bull. Moscow*, xvi. p. 24. pl. 4. 4 (not *Sow.*).

atula nucleata, *Fischer, id.* p. 25. pl. 4. f. 5, 6 (not *Zieten*).

Oxford Clay. Russia.

Coral Rag. Germany.

ALDHEIMIA LUNARIS.

l crescent-shaped, smooth; valves gibbose, concave in margins even; beak very small, depressed, keeled; fo-minute. Lon. 5½, lat. 7, alt. 4 lines.

atula lunaris (*Schübler*), *Zieten*, p. 59. pl. 44. f. 4.

'Orb. Prod. i. p. 288.

Inferior Oolite. Germany.

ALDHEIMIA PLANA.

B.M.

l small, pentagonal, smooth; front truncated; margins dorsal valve rather flat, slightly depressed centrally in with indications of a long central septum; ventral valve, flattened in the centre, with two obscure ridges; beak and, laterally keeled; foramen small, round; deltidium indented. Lon. 5, lat. 5, alt. 3 lines.

atula plana, *Münster in Cambridge Museum*.

atula pentahedra, id.

atula pentahedra, minor, (*Münster*) *Dr. Braun in British Museum*.

atula nana, id.

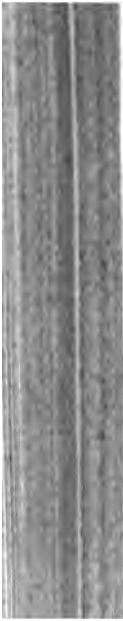
Oxfordian—Coral Rag. Bavaria.

ALDHEIMIA MARIÆ.

T. cornuta, but shorter, truncated, and straight in front.

atula Mariæ, *D'Orb.* 1847, *Prod.* i. p. 240.

Lias. France.



Terebratula Edwardsi, *Dav. Mon. Ool. Brach.* p. 30. |
Fossil. *Lias*. England.

46. WALDHEIMIA LYCETTII.

Shell smooth, subcircular, ventricose; beak ridges indistinct; deltidium rudimentary, almost the foramen; front margin slightly waved. Lon. 8 lines.

Terebratula Lycettii, *Dav. Mon. Ool. Brach.* p. 44. p
Terebratula numismalis, ovalis, *Quenst. Handb.* p
f. 27?

Fossil. *Lias*. Somersetshire; Germany.

47. WALDHEIMIA GLOBULINA.

Shell minute, circular, ventricose, smooth; m
beak minute, recurved, with short and curved la
loop simple, short. Lon. 2, lat. 2, alt. 1 line.

Terebratula globulina, *Dav. 1847, Ann. Nat. Hi*
f. 4; *Mon. Ool. Brach.* p. 57. pl. 11. f. 20, 21.

Fossil. *U. Lias*. Ilminster.

48. WALDHEIMIA COMMUNIS.

Shell oval, depressed, smooth, ornamented with
loured rays; margins even, slightly raised in front
moderately convex, with a flattened, rounded ri
depressed at the umbo and sides, furnished internall

Beak laterally keeled; dorsal valve with a longitudinal depression in the centre.

bratulæ Carinatæ acutæ, *Buch.*

bratulæ Impressæ, *Quenst.* 1851, *Handb.* p. 469.

WALDHEIMIA IMPRESSA.

B.M.

Shell subcircular, polished; smaller valve flat, depressed in the middle in front; ventral valve convex; beak recurved, with lamellar ridges; foramen minute; deltidium double; loop elongated, attached, lamella very broad; septum nearly as long as the shell. Lon. 9 or 10, lat. 9, alt. 5 lines.

bratula impressa, *Buch.* 1832, *Ueber Terebrateln*, *Mém. Soc. Géol. France*, 1 ser. p. 226. pl. 20. f. 7, 1838.

Zieten, Würt. Verst. p. 53. pl. 39. f. 11.

Davidson, Mon. Ool. Brach. p. 33. pl. 4. f. 8-10.

Quenst. Handb. p. 468. t. 37. f. 36, 37.

sil. *Inferior Oolite.* Dorset; Cheltenham.

Oxford Clay. Huntingdonshire; Germany.

WALDHEIMIA BERNARDINA.

Shell like *T. pala*, but oval-obround, truncated in front, rounded in the middle; small valve much depressed, with a sinus in the middle."

bratula Bernardina, *D'Orb.* 1850, *Prod.* i. p. 377.

sil. *Oxford Clay.* France.

? WALDHEIMIA LABIATA.

Shell smooth, round or oval, depressed, truncated in front, or the front of the little valve sunk, forming a deep sinus in the larger valve.

bratula labiata, *D'Orb.* 1850, *Prod.* i. p. 377.

sil. *Oxford Clay.* France.

? WALDHEIMIA CHAUVINIANA.

Shell oblong; obtuse in front; beak pointed; small valve very flat, the other ventricose.

bratula Chauviniana, *D'Orb. Prod.* i. p. 344.

sil. *Kelloway Rock?* France.

54. ? WALDHEIMIA RUPPELLENSIS,

Shell like *T. resupinata*, but with the small valve
Terebratula Rüppellensis, *D'Orb.* 1850, *Prod.*
Fossil. Coral Rag. France.

55. WALDHEIMIA RESUPINATA.

Shell smooth, oval; smaller valve with a deep
depression; beak small, incurved, with prominent
foramen minute; deltidium wide, obtuse; long
gated. Lon. 16, lat. 14, alt. 12 lines.

Terebratula resupinata, *Sow. Min. Con.* 1818,
f. 3, 4.

Phil. Geol. Yorks. pl. 13. f. 23.

Buch, Mém. Soc. Géol. France, p. 229. pl.

Dav. Mon. Ool. Brach. p. 31. pl. 4. f. 1-5.

Quenst. Handb. p. 469. t. 37. f. 38.

Torrubia, Hist. Nat. Hispan. 1773, t. 9. f. 3.

Fossil. Lias. Britain; France; Germany.

56. ? WALDHEIMIA FLORELLA.

"Like *T. resupinata*, but without any depression
of the smaller valve."

Terebratula florella, *D'Orb. Prod.* 1850, p. 258.

Fossil. Lias (unver). France.

? WALDHEIMIA SUBRESUPINATA.

Like *T. resupinata*, but with the small valve not ventricose, marked by a strong, medio-longitudinal impression."

bratula subresupinata, *D'Orb. Prod.* 1850, p. 287.

sil. *Inferior Oolite*. France.

WALDHEIMIA BAJOCINA.

Like *T. subresupinata*, but more oval, more attenuated in t, and without the depression in the small valve."

bratula Bajocina, *D'Orb.* 1850, *Prod.* i. p. 288.

sil. *Inferior Oolite*. France.

WALDHEIMIA CARINATA.

B.M.

hell oblong, smooth, narrow and slightly truncated in front ; *ller* valve flat, with a central longitudinal depression ; ventral e convex, laterally compressed ; beak slightly recurved, ed ; foramen moderate ; deltidium double, rather long ; loop ple, elongated. Lon. 13-20, lat. 9-17, alt. 5-10 lines.

bratula carinata, *Val.* 1819, in *Lam. An. sans Vert.* vi. p. 25.

Davidson, Mon. Ool. p. 35. pl. 4. f. 11-17 ; *Ann. Nat. Hist.* June 1850, pl. 13. f. 25.

sil. *Inferior Oolite*. England ; Normandy.

WALDHEIMIA PENTAHEDRA.

B.M.

hell pentagonal, depressed, smooth, with numerous imbrica- lines of growth ; dorsal valve nearly flat, ventral convex ; c prominent, scarcely curved, keeled at the sides ; foramen er large, deltidium distinct. Lon. 8, lat. 7, alt. 5 lines.

bratula pentahedra, *Münster, Beitrage*, p. 109.

Bronn, Index, p. 1244 (not *Ter. pentahedra minor*, *Münst.*). *bratula tetragona*, *Ræmer*, 1836, *Nordd. Ool.* p. 52. t. 2. f. 13.

sil. *Coral Rag*. Saxony ; Bavaria.

Inferior Oolite. Stroud (Brit. Mus.).

WALDHEIMIA SUBIMPRESSA.

B.M.

hell diamond-shaped, depressed, smooth, with a few strongly *ricated* lines of growth ; edges square ; margins quite even ; *sal* valve flat ; ventral valve rather prominent along the *tre* ; beak prominent, straight, with strong lateral ridges ; *men* round ; deltidium narrow, solid. Lon. 10, lat. 8, alt. 4½ s.

bratula subimpressa, var. *elongata*, *Münster in Cambridge Museum*.

Terebratula bucculenta? Zieten, p. 52. pl. 39. f. 6 (not *So Terebratula emarginata*, Quenst. *Handb.* p. 471. t. 37. f. 5 Sow.).

Fossil. *Inferior Oolite.* Bavaria.

63. WALDHEIMIA EMARGINATA.

Shell subrhombic, truncated and indented in front; s valve flat, sometimes longitudinally depressed in front; v valve convex; beak slightly recurved; deltidium distinct men moderate; loop simple, elongated. Lon. 11, lat. 10 lines.

Terebratula emarginata, Sow. 1825, *Min. Con.* v. p. 50. f. 5.

Deslong. 1837, *Soc. Lin. Normandie.*

Davidson, *Mon. Ool.* p. 35. pl. 4. f. 18-21.

Fossil. *Inferior Oolite.* England; Normandy.

64. WALDHEIMIA HUMERALIS.

Shell obovately pentagonal, widest above the centre, in front, depressed, smooth; dorsal valve rather flat; ventr convex, with an obtuse longitudinal ridge; beak small, in keeled at the sides. Lon. 8, lat. $6\frac{1}{2}$, alt. 4 lines ($12\frac{1}{2}$: 1 Cambr.).

Terebratula humeralis, Ræmer, 1839, *Nordd. Ool.* ii. p. 2 f. 14.

Bronn, *Index*, p. 1238.

Fossil. *Portland Oolite.* Germany.

65. WALDHEIMIA WATERHOUSII.

Shell smooth, subquadrate, longer than wide; sma concave in front; beak small, with acute lateral ridges; dium double; loop simple, elongated. Lon. 9, lat. 7 lines.

Terebratula Waterhousii, Dav. 1851, *Mon. Ool.* p. 3 f. 12, 13.

Fossil. *Lias.* England; Wurtemberg.

66. WALDHEIMIA BAKERIÆ.

Shell smooth, semicircular; dorsal valve depressed in dle in front; wider than long; ventral valve convex small, with indistinct lateral ridges; foramen entire touching the umbo of dorsal valve. Lon. 4, lat. 5, a

Oratula Bakeriæ, *Dav. Mon. Ool. Brach.* 1851, p. 38. pl. 5.
l.

Oratula Heyseana, *Dunker?*

l. *Inferior Oolite*. Northampton (Brit. Mus.).

VALDHEIMIA HEYSEANA.

B.M.

ell transverse, somewhat trigonal, winged, smooth; dorsal slightly convex, deeply depressed in the centre in front; al valve more convex, with a prominent central rounded; beak depressed, curved, sharply keeled; foramen minute; sium triangular. Lon. 5, lat. 6, alt. 3 lines.

Oratula Heyseana, *Dunker*, 1847, *Pal.* i. p. 129. pl. 18. f. 5.
Quenst. Handb. p. 471. t. 37. f. 47.

Oratula resupinata, *Ræmer*, 1836, *Nordd. Ool.* p. 55. t. 12.
r (not *Sow.*).

l. *Lias*. Germany.

VALDHEIMIA HEMISPHERICA.

B.M.

ell minute, hemispherical, striated; dorsal valve flat, or slightly concave; ventral valve convex; beak recurved, with 4 ridges, forming a small flattened hinge-area; foramen r large, round, incomplete; deltidium plates disunited. 4, lat. 3½, alt. 2 lines.

Oratula hemisphærica, *Sow.* 1829, *Min. Con.* vi. p. 69. t. 536.
l.

Desh. 1837, *Soc. Lin. Normandie.*

Davidson, Mon. Ool. p. 64. pl. 13. f. 17, 18.

Oratella hemisphærica, *D'Orb. Prod.* i. p. 316.

l. *Bath Oolite*. England; France.

VALDHEIMIA PALA.

B.M.

ell oval when young, afterwards elongated, and truncated ant; sides parallel, straight; valves smooth, or with a few of growth near the margin; margins even; dorsal valve with a longitudinal furrow, becoming wide and shallow in; beak prominent, recurved, laterally keeled; foramen minute; deltidium wide, solid; internal septum elongated, prominent. Lon. 12, lat. 7, alt. 6 lines.

Oratula pala, *Buch*, 1843, *über Terebrateln*, p. 115. t. 3.
44; *Mém. Soc. Géol. Fr.* iii. p. 228. pl. 20. f. 9.

Bronn, Index, p. 1244.

Quenst. Handb. p. 469. t. 37. f. 46.

l. *Alpenkalk*. Tyrol.

punctate; dorsal valve circular, nearly flat, with longitudinal furrow, and indications of an internal ventral valve convex; beak prominent, rounded cated by a small foramen. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt

Terebratula subangusta, *Münst.* 1841, *Beitr.* iv.

D'Orb. Prod. i. p. 204.

Terebratula præmarginata, *Klipst.* 1844, p. 222

D'Orb. Prod. i. p. 204.

Fossil. *Trias.* Tyrol.

72. WALDHEIMIA ANGUSTA.

Shell small, elongated, oval, smooth; dorsal convex, impressed in the middle in front; margin rounded, recurved; foramen small. Lon. 5, lat

Terebratula angusta, *Schl.* 1820, *Petref.* p. 285

Buch, Mém. Soc. Géol. Fr. iii. p. 217. pl. 2

Dunker & Meyer, Palæont. p. 285. pl. 34. f

D'Orb. Prod. i. p. 177.

Fossil. *Muschelkalk.* Silesia.

73. WALDHEIMIA ? NAVICULA.

Shell oval, boat-shaped, smooth; dorsal valve at the sides, depressed in front, with a prominent septum inside; ventral valve convex, with a very fine longitudinal ridge; beak prominent, closed

74. WALDHEIMIA ? UMBRA.

Shell orbicular, depressed, slightly truncated in front, smooth; dorsal valve with a deep longitudinal furrow becoming wider in front; margins evenly sinuated; ventral valve with an obtuse longitudinal ridge; beak very small, recurved. Lon. and lat. 7, alt. 3 lines.

Terebratula umbra, Barrande, 1847, in *Haidinger's Abhandl.* p. 401. t. 17. f. 3.

Atrypa umbra, D'Orb. *Prod.* i. p. 38.

Fossil. U. *Silurian.* Bohemia.

75. WALDHEIMIA ? UPSILON.

B.M.

Shell subpentagonal, truncated and indented in front, ventricose, smooth; margins even, slightly arched in front; edges thick, rounded; valves equally convex, each with two rounded ridges, separated by a shallow sinus, in front; beak small, laterally compressed, recurved. Lon. 11, lat. 10, alt. 7 lines.

Terebratula upsilon, Barrande, 1847, in *Haidinger's Abhandl.* p. 405. t. 15. f. 9.

Atrypa ? upsilon, D'Orb. *Prod.* i. p. 40.

Hemithyris upsilon, M'Coy, *Pal. Foss.* p. 207.

Fossil. U. *Silurian.* Bohemia; Wales.

76. WALDHEIMIA ? JUNO.

Shell oval, widely truncated in front, depressed, smooth; margins even; valves equally convex, slightly sinuated in front; beak small, compressed. Lon. 8, lat. 7, alt. 4 lines.

Terebratula Juno, Barrande, 1847, in *Haidinger's Abhandl.* p. 407. t. 15. f. 10.

Atrypa Juno, D'Orb. *Prod.* i. p. 40.

Fossil. U. *Silurian.* Bohemia.

77. WALDHEIMIA ? CANALIS.

Shell oval or orbicular, smooth; both valves with a deep medio-longitudinal furrow; margins even, deeply indented in front; beak small, recurved. Lon. 6, lat. 4½ lines.

Terebratula canalis, J. Sowerby, 1839, in *Murch. Silur. Syst.* p. 611. t. 5. f. 18.

Barr. Silur. Böhm. p. 410. t. 16. f. 13.

Atrypa canalis, D'Orb. *Prod.* i. p. 40.

Fossil. U. *Silurian.* England; Bohemia.

78. WALDHEIMIA? INELEGANS.

Shell orbicular, ventricose, smooth; margins even; equally convex; edges obtuse; ventral valve with an longitudinal furrow; beak small, recurved. Lon. and alt. $4\frac{1}{2}$ lines.

Terebratula inelegans, Barrande, 1847, in *Haidinger's A* p. 408. t. 17. f. 1.

Atrypa inelegans, *D'Orb. Prod.* i. p. 38.

Fossil. *U. Silurian.* Bohemia.

79. WALDHEIMIA? EPHEMERA.

Shell orbicular, smooth, slightly indented in front; even; valves equally convex, slightly sinuated in front; small, recurved. Lon. and lat. 5, alt. $3\frac{1}{2}$ lines.

Terebratula ephemera, Barrande, 1847, in *Haidinger's A* p. 408. t. 16. f. 11.

Atrypa? ephemera, *D'Orb. Prod.* i. p. 38.

Fossil. *U. Silurian.* Bohemia.

80. WALDHEIMIA? HECATE.

Shell orbicular, slightly pentagonal, smooth; valves margins sinuous, slightly arched in front; beak small, recurved. Lon. 9, lat. 10, alt. 6 lines.

Terebratula Hecate, Barrande, 1847, in *Haidinger's A* p. 409. t. 16. f. 12.

Spirigera Hecate, *D'Orb. Prod.* i. p. 43.

Fossil. *U. Silurian.* Bohemia.

81. WALDHEIMIA? SECURIS.

Shell trigonal, smooth, umbones convex; margins even sharp; front very wide, and like the sides nearly straight very small. Lon. 9, lat. 10, alt. $4\frac{1}{2}$ lines.

Terebratula securis, Barrande, 1847, in *Haidinger's A* p. 388. t. 16. f. 1.

Atrypa securis, *D'Orb. Prod.* i. p. 39.

Fossil. *U. Silurian.* Bohemia.

82. WALDHEIMIA? OBOLINA.

Shell transversely oblong, smooth; valves equally margins even; edges sharp; beak minute. Lon. 7, lat. 4 lines.

Terebratula obolina, *Barrande*, 1847, in *Haidinger's Abhandl.*
p. 404. t. 20. f. 9.

Atrypa obolina, *D'Orb. Prod.* i. p. 40.

Fossil. *U. Silurian.* Bohemia.

83. WALDHEIMIA ? HAMIFERA.

Shell orbicular, convex, smooth, with very obscure radiating
striae. Lon. 18, lat. 19 lines.

Terebratula hamifera, *Barrande*, 1847, in *Haidinger's Abhandl.*
p. 417. t. 20. f. 9.

D'Orb. Prod. i. p. 43.

Fossil. *U. Silurian.* Bohemia.

d. Beak round ; valves sharply plaited. Eudesia.

Terebratulæ costatæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.

Eudesia (orbicularis), *King*, 1849, *Permian Fossils*, 81. 144.

84. WALDHEIMIA GRAYII.

B.M.

Shell suborbicular, ornamented with numerous radiating ribs ;
ribs unequal, bifurcating and intercalating ; colour reddish yellow,
becoming deep red at the lines of growth ; dorsal valve rather
flat ; ventral valve convex ; beak obtuse, with distinct lateral
ridges ; foramen very large, incomplete ; deltidia disunited ; loop
elongated, reflected. Lon. 14, lat. 15, alt. 9 lines.

Terebratula Grayii, *Davidson*, May 1852, *Ann. Nat. Hist.* p. 365 ;

Zool. Proc. 1852, p. . pl. . f. 1-3.

Hab. Korea.

85. WALDHEIMIA BEAUMONTI.

B.M.

Shell oval, inflated, ornamented with 12-14 elevated, radiating
plaits, sometimes bifurcating, and crossed by numerous lines of
growth ; valves equally convex ; beak prominent, nearly straight,
pointed ; foramen small ; area concave ; deltidium large, trian-
gular. Lon. 6½, lat. 5, alt. 4 lines.

Terebratula Beaumonti, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii.
p. 331. pl. 21. f. 12-14.

D'Orb. Prod. ii. p. 172.

Fossil. *U. Greensand.* Belgium.

86. WALDHEIMIA MARCOUSANA.

Shell orbicular, ventricose, with 18-20 sharp radiating plaits ;
valves equally convex, margins dentated ; beak short, c

truncated by a moderate, round foramen; deltidium triangular, distinct. Lon. 13, lat. 13, alt. 8 lines.

Terebratula Marcousana, *D'Orb. Ter. Crét.* iv. p. 82. t. 507. f. 11-14; *Prod.* ii. p. 85.

Fossil. *Neocomian*. France.

87. WALDHEIMIA SEMISTRIATA.

B.M.

Shell angularly ovate or rounded, with 24-30 sharp radiating plaits; umbones smooth; beak prominent; foramen moderate; deltidium elongated; dorsal valve with two elevated ridges or angles in front. Lon. 14, lat. 12, alt. 8 lines.

Terebratula semistriata, *DeFrance*, 1828, *Dict. Sc. Nat.* t. lxxi. p. 156.

D'Orb. Ter. Crét. iv. p. 83. t. 508. f. 1-11; *Prod.* ii. p. 86.

Terebratula suborbicularis, *D'Arch.* 1839, *Mém. Soc. Géol. Fr.* iii. p. 311.

Leym. 1842, *Mém. Soc. Géol. Fr.* v. p. 18. pl. 14. f. 2, 3.

Terebratula biangularis, (*Desh.*) *Leym.* 1842, *Mém. Soc. Géol. Fr.* v. p. 11. pl. 14. f. 4.

Reuss, *Verst. Böhm. Kreid.* p. 51.

Terebratula propinqua, *Münster MS.*, *Jura, Hildesheim.*

Fossil. *Neocomian*. France; Switzerland.

88. WALDHEIMIA RETICULATA.

Shell oblong, inflated, partly smooth, or ornamented with radiating dichotomous striæ; dorsal valve with a sharp central elevation and two lateral folds; beak prominent, curved, laterally keeled; foramen moderate, round; deltidium double, elongated. Lon. 14, lat. 10, alt. 8 lines.

Terebratula reticulata, *Pusch*, 1837, *Polens Pal.* t. 3. f. 11 (not *Sow.*).

Terebratula Puscheana, *Ræmer*, 1841, *Kreid.* p. 114. no. 3. t. 16. f. 29.

Terebratella reticulata, *D'Orb. Ter. Crét.* iv. p. 112. t. 515. f. 1-6.

Fossil. *Neocomian*. France; Poland; Germany.

89. WALDHEIMIA OBLONGA.

B.M.

Shell oblong, sharply plaited; plaits 20-40, simple or bifurcating, and becoming more numerous by intercalation; dorsal valve rather flat when young, becoming more convex with age; beak rather produced, nearly straight, with well-defined lateral ridges forming a flat area; foramen entire, slightly truncating the beak; deltidium double, distinct. Lon. 12, lat. 9, alt. 7 lines.

Terebratula oblonga, Sow. 1829, *Min. Con.* vi. p. 68. t. 535. f. 4-6.

Buch, Mém. Soc. Géol. Fr. iii. p. 359. pl. 16. f. 2.

Ræmer, Nordd. Ool. p. 46. t. 2. f. 23; *Kreid.* p. 39. no. 18.

Davidson, Mon. Cret. p. 51. pl. 2. f. 29-32.

Terebratella oblonga, D'Orb. *Ter. Crét.* iv. p. 113. pl. 515. f. 7-19.

† **Terebratula quadrata**, J. Sow. *Trans. Geol. Soc.* iv. pl. 14. f. 9.

Fossil. *Lower Greensand (Neocomian).* England; France; Switzerland; Germany.

90. WALDHEIMIA CARDIUM.

B.M.

Shell oval, strongly plaited; ribs broad and sharp, about eighteen in number, simple or forked; dorsal valve subcircular, rather flat when young; ventral valve deep, with a large, truncated beak; foramen large, round; deltidium narrow, concave; loop simple, elongated. Lon. 16, lat. 12, alt. 11 lines.

Terebratula Cardium, Val. in Lam. 1819, *An. sans Vert.* vi. no. 47;

Encyc. Méth. pl. 141. f. 6.

Deslong. Soc. Lin. Normandie.

Davidson, Ann. Nat. Hist. June 1850; *Mon. Ool.* p. 43.

pl. 12. f. 13-18; *Ann. Nat. Hist.* June 1850, pl. 14. f. 47.

Terebratula orbicularis, Sow. 1829, *Min. Con.* vi. p. 68. t. 535. f. 3.

Buch, Mém. Soc. Géol. France, iii. ser. 1. p. 160. pl. 16. f. 3.

Ræmer, Nordd. Ool. p. 46.

Bronn, Index Paleont. p. 1243.

D'Orb. Prod. p. 315.

Quenst. Handb. p. 466. t. 37. f. 31.

Terebratula furcata, Sow. *Min. Con.* vi. p. 67. t. 535. f. 2 (young).

Fossil. *Bath Oolite (Bradford Clay).* England; France.

91. WALDHEIMIA? ADRIENI.

Shell suborbicular, rather depressed, ornamented with 17-20 sharp radiating plaits; valves nearly equally convex; beak rounded, curved, truncated by a circular foramen; deltidium distinct. Lon. 9, lat. 8, alt. 5 lines.

Terebratula Adrieni, Vern. & Arch. 1845, *Bull. Soc. Géol. Fr.* ii.

pl. 14. f. 11.

D'Orb. Prod. i. p. 100.

Fossil. *Devonian.* Spain; Eifel.

92. WALDHEIMIA? PROMINULA.

Shell oblong, rather truncated in front, ornamented with twenty-four sharp radiating ribs; valves convex, slightly flattened along the centre; margins dentate; beak prominent, slightly curved, truncated by a round foramen; deltidium elongated, bordered by a smooth space. Lon. 10, lat. 8, alt. 5 lines.

Terebratula prominula, *Ræmer, Rhein. Ueberg.* p. 66. pl. 5. f. 3.
D'Orb. Prod. i. p. 100.

Fossil. *Devonian.* Prussia.

93. WALDHEIMIA? ULOTHRIX.

Shell somewhat transverse, rounded, with 9-11 sharp radiating plaits; surface ornamented with wavy, concentric lines, especially near the margin; beak small, recurved; aperture rounded; area small, triangular, distinct. Lon. 6, lat. $7\frac{1}{2}$, alt. 4 lines.

Terebratula crispata, *Koninck, Descr.* p. 292 (not *Sow.*).

Terebratula ulothrix, *Kon.* 1844, *id.* pl. 19. f. 5, note.

Terebratula subcrispata, *D'Orb.* 1847, *Prod.* i. p. 151.

Fossil. *Carboniferous.* Belgium.

94. WALDHEIMIA? TRILATERA.

Shell small, triangular, elongated, laterally compressed, ornamented with 18-22 sharp radiating plaits, each valve with a medio-longitudinal depression; beak short, acute, straight; foramen minute; area inconspicuous. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt. $2\frac{1}{2}$ lines.

Terebratula trilatera, *Koninck*, 1844, *Descr.* p. 292. pl. 19. f. 7.

D'Orb. Prod. i. p. 151.

Fossil. *Carboniferous.* Belgium.

e. Beak elongated; valves ornamented with rounded ribs. *Lyra.*

Lyra (Meadi), *Cumberland*, 1816, in *Sow. Min. Con.*

Trigonosemus, *Kænig, Icon. Sect.* (part.) 1825.

? *Rhynchora* (costata), *Dalman*, 1828, *Vetens. Acad.* p. 136.

Hisinger, Lethæa Suecica.

Terebratulæ rostratæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.

Rhynchoridæ, *King, Permian Fossils*, 81, 141.

Rhebristroa (*lyra*), *D'Orbigny*, 1848, *Ann. Sc. Nat. Terr. Crét.* iv. t. 519.

Dav. 1852, *Mon. Cret.* p. 31.

WALDHEIMIA DAVIDSONIANA.

Shell suborbicular, with a produced, tapering beak; valves tri-
 -ed, ornamented with simple, radiating ribs, decussated by a
 marked lines of growth; dorsal valve transverse, with a raised
 -tral lobe; ventral valve with a longitudinal furrow; hinge-
 -nearly as wide as the shell; area triangular; foramen oval,
 -ll; deltidium elongated, triangular. Lon. 11, lat. 9, alt. 5
 s.

ebrirostra Davidsoniana, *Ryckholt*, 1852, *Notice sur les genres*
Vautilus, &c., p. 10. f. 4-7.

sil. *U. Chalk.* Cibly, Belgium.

WALDHEIMIA PECTINATA.

B.M.

Shell oblong, ventricose, truncated posteriorly, ornamented
 - rugose, bifurcating ribs; margins toothed, not sinuous;
 -sal valve convex, with a wide and nearly straight hinge-line,
 -ished inside with a very wide cardinal process, and a short,
 -minent median septum; crura slender, contiguous; loop
 -bly attached?; ventral valve deep, truncated by a very large
 -men*; area and deltidium nearly obsolete; teeth at the angles
 -the hinge. Lon. 16, lat. 19, alt. 9 lines (*Morris*).

omia pectinata, *Linn.* 1767, *Syst. Nat.* iii. p. 1150.

omites costatus, *Wahlenberg*, 1821, *Acta Upsal.* viii. p. 62. t. 4.
 . 12-14.

tebratula costata, *Nilsson, Petref. Suec.* p. 37. t. 3. f. 13.

ynchora costata, *Dalman*, 1828, *Vet. Acad.* p. 136.

Hisinger, Leth. Suec. t. 20.

tebratula lyra, (not *Sow.*), *Dalman; Hisinger; Bronn;*
Torris.

tebratula pectinata, *L. Appendix to Morris's Catalogue*, p. 216.

sil. *U. Chalk.* Sweden.

WALDHEIMIA LYRA.

B.M.

Shell lyre-shaped, straight or slightly curved, striato-costate;
 - about half as long as the shell, slender, tapering, truncated
 - small, transversely oval foramen; deltidium narrow, as long
 -the beak, bordered on each side by a narrow flat area; dorsal
 - oval, obtuse in front; ribs rounded, undulating, simple or
 -teating, or intercalary. Lon. 27, lat. 10, alt. 7 lines.

The umbones of both valves are worn, as if by contact with the
 . in all the examples in London cabinets (*Woodward*).

- Lyra Meadi, *Cumberland* (1816) in *Sowerby's Min. Con.*
Terebratula lyra, *Sowerby*, 1816, *Min. Con.* ii. p. 87. t. 138
Lam. An. sans Vert. vi. p. 255.
Smith, Strata Identified, f. 3.
DeFr. Dict. Sc. Nat. liii. p. 160. pl. 62. f. 7.
Desh. Enc. Méth. iii. p. 1029; in *Lam.* ed. 2. vii. p. 3.
Buch, Mém. Soc. Géol. France, iii. p. 173. pl. 16. f. 1.
Dujardin, Dict. Univ. Hist. Nat. pl. 9. f. 5, 6.
Trigonosemus lyra, *König, Icones*, 1825, p. 4. pl. 6. f. 76,
Bronn, Illust. Conch. pl. 49. f. 5-13.
Terebrirostra Lyra, *D'Orb. Ter. Crét.* iv. t. 519. f. 11-19;
 ii. p. 173.
Davidson, Mon. Crét. p. 32. pl. 3. f. 17-28.
 Fossil. *U. Greensand.* England; France.

98. WALDHEIMIA ARDUENNENSIS.

Shell elongated, depressed, radiately ribbed; ribs dichotomous, irregular, wavy; beak very long, often curved; deltidium nelled. Lon. 24, dorsal valve 13, lat. 8 lines.

Terebrirostra Arduennensis, *D'Orbigny*, 1847, *Ter. Crét.* iv. t. 519. f. 6-10.

Terebratula lyra, var.?

Fossil. *Gault.* France.

99. WALDHEIMIA BARGESANA.

Shell lyre-shaped, ornamented with radiating, bifurcating dorsal valve oblong, slightly truncated and depressed in beak moderately produced, tapering, with a very small, foramen; area level, triangular; deltidium tapering, trilobed. Lon. 12, lat. 9, alt. 7 lines.

Terebrirostra Bargesana, *D'Orbigny*, 1851, *Journ. de Conch.* p. 225. pl. 4. f. 2-5.

Dav. Ann. Nat. Hist. April 1852, pl. 14. f. 5.

Fossil. *Greensand.* Santander, N. Spain.

100. WALDHEIMIA NEOCOMIENSIS.

Shell elongated, triangular, depressed, radiately ribbed dichotomous; valves very unequal, the dorsal slightly α the ventral with a straight, tapering beak; foramen small deltidium elongated, triangular. Lon. 10 lines.

Terebrirostra neocomiensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 127. t. 519. f. 1-5; *Prod.* ii. p. 85.

Fossil. *Neocomian*. France.

101. WALDHEIMIA? LYRATA.

B.M.

Shell orbicular, with a prominent beak; valves convex, ornamented with nine radiating rounded ribs; dorsal valve circular; beak produced, tapering, truncated by a minute foramen; area triangular, flat, sharply bordered; deltidium triangular, sunk. Lon. 4, lat. $3\frac{1}{2}$, alt. $2\frac{1}{2}$ lines.

Terebratula lyrata, *Münster*, 1841, *Beitr.* iv. p. 57. t. 6. f. 5 c.

Fossil. *Trias*. Tyrol.

102. WALDHEIMIA? HUMBOLDTII.

B.M.

Shell obovate, with nine radiating plaits, crossed by a few imbricating lines of growth; middle plait smaller than the next; dorsal valve transverse, depressed in the centre, indented in front; beak elongated, tapering, truncated by a small round foramen; area triangular, flat, sharply bounded; deltidium narrow, sunk. Lon. , lat. , alt. lines.

Spirifer Humboldtii, *Klipstein*, 1844, *Beitr.* p. 233. t. 15. f. 17.

Terebratula lyrata (part.?), *Münst.* t. 6. f. 5 a, b?

Fossil. *Trias*. Tyrol.

103. WALDHEIMIA? PROCERRIMA.

B.M.

Shell oval, with a long slender beak; valves ornamented with 12-13 radiating ribs; dorsal valve auriculate, with a small prominent umbo; central rib small, occupying a slight depression; hinge-line short and straight; beak elongated, tapering, curved, truncated by a minute foramen (or three foramina when broken); area long and narrow, sharply bounded. Lon. 5, lat. 3, alt. $2\frac{1}{2}$ lines.

Spirifer procerrimus, *Klipstein*, 1844, *Beitr.* p. 233. pl. 15. f. 8.

D'Orb. Prod. i. p. 204.

Fossil. *Trias*. Tyrol.

Tribe II. MAGASINA.

Shell smooth or radiately plaited; dorsal valve with a longitudinal depression; hinge-line straight, or only slightly curved; area usually distinct; deltidium frequently incomplete; loop attached to the septum of the dorsal valve (fig. 8).

Magas, Sow. *Min. Conch.* 1816, t. 119.

Terebratula, § C, *Blainv. Dict. Sci. Nat.* liii. 145, 1828.

Terebratulidæ, § 2, *Gray, Ann. & Mag. Nat. Hist.* 1848, ii. 435.

Wieg. Arch. 1849, 98.

Lovén, Arsb. 1848 and 1849, 213, & p. 8.

Terebratulidæ, part., et *Magasidæ*, part., *D'Orb. Ann. Sci. Nat.* 1847.

Terebratula, *Retzius, Gen.*

Mr. James Sowerby the elder gives a "partial longitudinal septum with appendages attached to the hinge within," as the character of the genus *Magas*, which is that of the whole tribe. He first pointed out the advantage of studying the internal apparatus, and observed in 1816, "It is much to be wished that some person would publish an account of the curious internal appendages of these shells."—*Mineral Conch.* t. 119.

M. de Blainville in 1828 (*Dict. Sci. Nat.* liii. 145) used the form of the internal apparatus to divide the *Terebratulæ* into six divisions. Section A. "*Gripus, Megerle*" = *Terebratulina*. B. = *Terebratella*. C. = *Terebratulina*. D. = *Megeria*. E. = *Bouchardia*. F. = *Argiope*.

The genera into which the *Magasina* have been divided depend chiefly on modifications of the internal skeleton; these do not always correspond with the peculiarities of external form, or the character of the foramen and deltidium.

4. TEREBRATELLA.

Loop elongated, reflected, doubly attached;—to the hinge-plate, and also to the longitudinal septum by processes given off at right angles from the crura, near the centre of the valve.

Terebratella (*chilensis*), *D'Orb.* 1848, *Ann. Sc. Nat.* viii. 67.

King, 1849, *Permian Fossils*, 81, 144.

Dav. 1852, *Ann. Nat. Hist.* p. 366; *Mon. Cret.* p. 24.

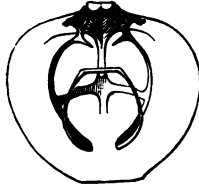
Terebratulæ loricatæ, *Buch*, 1834, *über Terebrateln.*

Quenstedt, Handb. p. 463.

Terebratula (*dorsata*), *Retzius.*

Terebratella (*dorsata*), *D'Orbigny, Paleont. Franç.*

Delthyris (*dorsata*), *Menke, Syn.* ed. 2. p. 96.

Fig. 8. Dorsal valve of *Terebratella dorsata*.1. *TEREBRATELLA DORSATA*.

B.M.

Shell broadly ovate, somewhat trilobed, whitish, radiately ridged, the lateral ridges more oblique than the mesial; margins denticulate; dorsal valve with a broad and shallow central depression; beak short; foramen very large, incomplete; deltidia small, triangular, separate; hinge-area large, rather flattened; loop elongated, reflected, attached to a central septum. Lon. 14, lat. 14, alt. 6 lines.

Anomia dorsata, Gmelin, 1788, S. N. 3348.

Dillwyn, R. S. i. p. 295.

Anomia striata Magellanica, Chemnitz, *Conch. Cab.* viii. p. 101. t. 78. f. 710, 711.

Terebratula, Lamk. E. M. t. 242. f. 1.

D'Avila, i. t. 20. f. A. Da Costa, *Elem.* t. 6. f. 7.

Terebratula dorsata, Schum. N. S. p. 133.

Lamk. *Hist.* ed. 2. vii. p. 331.

Blainv. *Man. Malac.* t. 51. f. 1; D. S. N. liii. p. 137, 145.

Sow. *Gen. Shells*, f. 3; *Thes. Conch.* viii. p. 346. t. 68. f. 15, 16, 17.

Küster, *Conch. Cab.* vii. p. 22. t. 1. f. 17; t. 2. f. 14, 15.

Delthyris dorsata, Menke, *Syn.* ed. 2. p. 96.

Hab. Straits of Magellan.

2. *TEREBRATELLA FLEXUOSA*.

B.M.

Shell wider than long, somewhat pentagonal, rather gibbous, pale brown, with prominent, bifurcating, radiated ridges; margins sinuated and denticulated; dorsal valve with a broad, indistinct mesial groove; ventral valve with a short beak and a wide, flattened hinge-area; foramen large, incomplete; deltidia small, separate; loop elongated, doubly attached. Lon. 15, lat. 16 lines.

Terebratula flexuosa, King, *Zool. Journ.* v. p. 337.

G. B. Sow. *Thes. Conch.* vii. p. 347. t. 69. f. 23, 24.

Hab. Straits of Magellan.

3. TEREBRATELLA CHILENSIS.

Shell transversely oval, slightly gibbous, pale brown, with radiating ridges; margins crenulated; dorsal valve with a smooth, wide and shallow longitudinal groove in the centre; beak obtuse; hinge-area large and flattened; foramen large, incomplete; deltidia moderate, separate; loop elongated, doubly attached. Lon. 14, lat. 16 lines.

Terebratula Chilensis, Broderip, *Proc. Zool. Soc.* 1836, p. 134.

G. B. Sow. Thes. Conch. vii. p. 347. t. 68. f. 18, 19.

Terebratella Chilensis, D'Orb. *Ann. Sc. Nat.* 1848, viii. p. 67. t. 7. f. 13.

King, Permian Fossils, p. 81, 1850.

Hab. Valparaiso, at 90 fathoms.

4. TEREBRATELLA SOVERBII.

B.M.

Shell rounded, trilobed, rusty brown, with obscure radiating ribs; margins sinuated in front; dorsal valve with a broad, longitudinal, central depression; hinge-area large and flattened; foramen large and incomplete; deltidia small, disunited; loop elongated, doubly attached. Lon. 17, lat. 17, alt. lines.

Terebratula Soverbii, King, *Zool. Journ.* v. p. 338.

G. B. Sow. Thes. Conch. vii. p. 348. t. 68. f. 20, 21, 22.

Terebratella Soverbii, Dav. *Ann. Nat. Hist.* 1852, p. 367.

Hab. Straits of Magellan.

5. TEREBRATELLA COREANICA.

B.M.

Shell quadrangular, smooth, pale brown with crimson rays; beak obtuse, with lateral ridges; hinge-area large; foramen large, complete; deltidia united; dorsal valve flattish; loop elongated, doubly attached. Lon. 13, lat. 13½ lines.

Terebratula Coreanica, Adams & Reeve, 1850, *Zool. Samarang*, p. 71. pl. 21. f. 3.

Terebratella Coreanica, Dav. 1852, *Ann. Nat. Hist.* p. 367.

Hab. Corean Archipelago.

6. TEREBRATELLA BOUCHARDII.

Shell suborbicular, smooth, of a uniform light yellow colour; beak produced, recurved, furnished with lateral ridges, and truncated by a large, circular and entire foramen; deltidia united; hinge-area slightly concave; dorsal valve depressed in the centre in front; loop elongated, doubly attached. Lon. 14, lat. 13, alt. 8 lines.

Terebratella Bouchardii, Davidson, 1852, *Ann. Nat. Hist.* p. 367;

Proc. Zool. Soc. p. pl. f. 4-6.

Hab. — ? (Mus. Cuming.)

7. TEREBRATELLA RUBICUNDA.

B.M.

Shell rounded, trilobed, gibbous, smooth, yellow-red, deeper at the lines of growth; margins sinuated in front; dorsal valve with a central, longitudinal furrow; beak rather produced, blunt; foramen large, nearly complete; deltidia large, separate; loop elongated, doubly attached. Lon. 12, lat. 11 lines.

Anomia rubicunda, Solander MSS. Mus. Banks.

Terebratula rubicunda, Donovan, Nat. Repos. t. 56. f. 2-4.

G. Sow. Thes. Conch. vii. p. 351. t. 70. f. 45-47.

Davidson, Ann. Nat. Hist. 1852, p. 367.

Terebratula inconspicua, G. Sow. Thes. Conch. vii. p. 359. t. 71. f. 102-104.

Hab. New Zealand.

8. TEREBRATELLA CRUENTA.

B.M.

Shell rounded, ventricose, ornamented with radiating, dichotomous ribs, orange-red, deepest at the lines of growth; margins crenulated; dorsal valve with a central, longitudinal depression; beak somewhat produced, lateral ridges distinct; area large, rounded; foramen large, complete; deltidium large; loop elongated, doubly attached. Lon. 18, lat. 19, alt. 12 lines.

Lampas sanguineus, Humph. Calonne Cat. (not described).

Anomia sanguinea, Solander MSS. (Humph. Cat.) (not Chemnitz).

Terebratula sanguinea, Leach, Zool. Misc. t. 76.

Lam. An. sans Vert. vi. p. 243.

Donovan, Nat. Repos. t. 34.

Anomia cruenta, Dilw. Syn. p. 295, 1817.

Terebratula rubra, Sow. Thes. Conch. pl. 68. f. 9-11.

Terebratula Zelandica, Deshayes, 1830, Mag. Zool. 1841, t. 42.

Sow. Thes. Conch. vii. p. 361. t. 72. f. 111-113.

Terebratella Zelandica, Davidson, Ann. Nat. Hist. 1852, p. 367.

Hab. Cook's Straits, New Zealand, in 15 fathoms.

9. TEREBRATELLA TRANSVERSA.

Shell transversely ovate, thin, smooth, slightly wrinkled by lines of growth, pale horn-colour; margins flexuous; dorsal valve deeply depressed in the centre in front; ventral valve with an obtuse beak, perforated by a large, incomplete foramen; area wide and flattened; deltidia small, distant; loop elongated, doubly attached. Lon. 14, lat. 17 lines.

Terebratula transversa, G. Sowerby, Thes. Conch. vii. p. 361. t. 72. f. 114, 115.

Terebratella transversa, Dav. Ann. Nat. Hist. 1852, p. 368.

Hab. — ? (Cab. Mr. Norris.)

10. TEREBRATELLA RUBELLA.

Shell oval, pointed at the beak and truncated in front, smooth, red-yellow, with diverging rays of bright red; dorsal valve with a slight central depression in front; beak recurved; hinge-area narrow; foramen small; deltidia large, united; loop elongated, doubly attached. Lon. 10, lat. 8, alt. 5 lines.

Terebratula rubella, G. Sowerby, 1846, *Thes. Conch.* vii. p. 350. pl. 69. f. 10-12.

Terebratella rubella, Dav. *Ann. Nat. Hist.* 1852.

Hab. Japan. (Mus. Norris, Cuming.)

11. TEREBRATELLA SANGUINEA.

Shell suborbicular, slightly notched in front, pale yellowish with bright red, spotted rays; margins slightly sinuated in front; dorsal valve rather depressed in front; beak short, rather pointed, with well-defined lateral ridges; perforation moderate, complete; deltidia rather large, united; area broad and well defined; loop elongated, doubly attached. Lon. 5, lat. $5\frac{1}{2}$, alt. 2 lines.

Anomia sanguinea, Chemnitz, *Conch. Cab.* viii. p. 96. t. 78. f. 706.

Dillwyn, R. S. p. 293, 1817.

Anomia sanguinolenta, Gmelin, S. N. p. 3347.

Terebratula sanguinea, Sow. *Thes. Conch.* vii. p. 357. t. 71. f. 71, 73.

Anomia cruenta, Solander MS. in *Mus. Banks.*

Terebratula cruenta, Donovan, *Nat. Repos.* t. 56. f. 1.

Terebratula erythroleuca, Quoy & Gaim. *Voy. Astrol.* iii. p. 557. t. 85. f. 8, 9.

Desh. in *Lamk. Hist.* ed. 2. vii. p. 350.

Terebratella sanguinea, Dav. *Ann. Nat. Hist.* 1852, p. 368.

Hab. Philippines, attached to coral.

12. TEREBRATELLA FRONTALIS.

"*Shell* suborbicular, rather solid, calcareous, rough, with irregular lines of growth and tessellated with microscopic dots, dirty yellowish; valves equally convex; marginal line straightish, entire; ventral valve produced posteriorly, slightly recurved, widely truncated by a large foramen, cardinal area narrow; dorsal valve suborbicular or transversely oval, without any median furrow; loop elongated, doubly attached."

Terebratula frontalis, Middendorff, 1849, *Malac. Rossicae*, p. 518 (*Mém. Acad. Petersb. Sc. Nat.* vi.).

Hab. S. coasts of Sea of Ochotsk.

TEREBRATELLA LABRADORENSIS.

B.M.

Shell ovate, produced at the beak, whitish, with obscure radiations; dorsal valve nearly orbicular, flattish; ventral valve with a prominent beak, perforated by a large, entire foramen; septum rather large; loop elongated, doubly attached. Lon. 7, lat. 2, alt. 5 lines.

Teratula Labradorensis, G. Sowerby, *Thes. Conch.* vii. p. 362. pl. f. 89, 90.

Teratella Labradorensis, *Dav. Ann. Nat. Hist.* 1852, p. 368. Labrador (Goodsir).

TEREBRATELLA SPITZBERGENSIS.

Shell small, oval, elongated, smooth, pale horn-colour; valves almost equally convex, margins even; dorsal valve slightly depressed in front; beak produced, recurved, obscurely keeled; septum moderate, incomplete; deltidium of two distinct elongated plates; loop elongated, reflected, attached near the extremity of the prominent central septum. Lon. 4, lat. 3, alt. 2 lines.

Teratella Spitzbergensis, Davidson, 1852, *Proc. Zool. Soc.* Spitzbergen. (Mus. Cuming.)

TEREBRATELLA PUSILLA.

Shell small, thin, nearly circular, depressed, smooth; area of valves small; foramen large, incomplete; deltidia rudimentary. Lon. 1, lat. 2½, alt. 1 line.

Teratula pusilla, *Philippi*, 1844, *Foss. Tert. Allem.* p. 17. pl. 2. f. 15.

Teratella pusilla, *D'Orb. Prod.* iii. p. 134.

Teratella, *Miocene*. Cassel.

TEREBRATELLA SAYI.

B.M.

Shell orbicular, depressed, ornamented with about eleven radiating plaits, crossed by a few conspicuous lines of growth near the margin; plaits strong, sometimes plicated near the edge; dorsal valve rather flat; ventral convex; beak scarcely prominent; septum small and flat; foramen small, incomplete; deltidium rudimentary. Lon. 9, lat. 9, alt. 5 lines.

Teratula Sayi, Morton, 1829, *Journ. Philad.* p. 76. pl. 3. f. 5, 6; *ibid.* 34, *Syn. Cret. Group*, p. 71. pl. 3. f. 3, 4.

Teratula plicata, Say, 1830, *Amer. Journ.* ii. p. 43.

Teratella plicata, *D'Orb. Prod.* ii. p. 259.

Teratella, *Chalk*. New Jersey, U.S.

17. TEREBRATELLA VANUXEMIANA.

Shell suborbicular, ornamented with unequal radiating ribs; each valve with a central furrow, bordered by more prominent ribs; beak not prominent; area widely triangular; foramen large; deltidium incomplete. Lon. 8, lat. 7, alt. 4 lines.

Terebratula Vanuxemiana, Forbes, 1844, *Proc. Geol. Soc.* p. 308 (figured).

Terebratella Vanuxemiana, D'Orb. *Prod.* ii. p. 259.

Fossil. *Chalk*. New Jersey, U.S.

18. ? TEREBRATELLA PARISIENSIS.

Shell small, round, very inequivalve, ornamented with broad, keeled, dichotomising ribs.

Terebratella Parisiensis, D'Orbigny, 1850, *Prod.* ii. p. 259.

Fossil. *Chalk*. France.

19. TEREBRATELLA SPATHULATA.

B.M.

Shell smooth, with concentric lines of growth; ventral valve semicircular, strongly curved, truncated at the hinge-line, toothed at the angles; dorsal valve nearly flat, smooth, oblong, rounded in front; hinge-line straight, as wide as the shell; dental sockets at the angles of the hinge-line; cardinal process obtuse; hinge-plate broad, divided into four concave spaces; median septum narrow; loop (indicated at the hinge and septum) doubly attached. Lon. 10-15, lat. 10-12, alt. 8-10 lines.

Anomites spathulatus, Wahlenberg, 1821, *Act. Ups.* viii. p. 62. t. 4. f. 10, 11.

Terebratula spathulata, Nilsson, *Petr. Suec.* p. 35. t. 3. f. 15. *Bronn, Index*, p. 1251.

Rhynchora spathulata, Dalman, 1828, *Vet. Akad.* p. 136.

Hisinger, Leth. Suecica, t. 20.

Fossil. *Chalk*. Sweden; Belgium.

20. TEREBRATELLA DAVIDSONIANA.

B.M.

Shell wedge-shaped, semicircular, truncated at the hinge-line; surface ornamented with lines of growth and radiated with prominent punctations; dorsal valve flat, with a narrow mesial fold; hinge-line straight, bordered by a plate with four cavities (for the pedicel-muscle) and with a small dental pit at each angle; a single prominent septum in the middle: ventral valve a simple bent plate, with a narrow mesial groove externally, a slight muscular ridge inside, and a tooth at each angle of the hinge-line. Lon. 4, lat. 6 lines.

Chora Davidsoniana, *Koninck MS.*

Chora minima, *id.*

. *Chalk.* Ciply, Belgium.

EREBRATELLA PECTITA.

ell subcircular, or somewhat pentagonal, plicato-striated; 30-60, increasing by intercalation; dorsal valve slightly x , longitudinally depressed in the centre in front; hinge-early as wide as the shell, almost straight; area distinct, triangular; foramen moderate; deltidium double. Lon. 10, alt. 6 lines.

Oratula pectita, *Sow. Min. Con.* 1818, ii. p. 87. t. 138. f. 1.

Lam. An. sans Vert. vi. p. 255. no. 46; ed. 2. vii. p. 343.

Brongn. Env. Paris, pl. 9. f. 3.

Defr. Dict. Sc. Nat. liii. p. 159.

Buch, Mém. Soc. Géol. Fr. iii. p. 168. pl. 16. f. 12.

Ræmer, Kreid. p. 40.

Oratula pectinata, *Smith, Strata identified*, 1816, f. 4.

Oratella pectita, *D'Orb. Ter. Crét.* iv. p. 120. t. 517. f. 16-20.

Dav. Mon. Crét. p. 26. pl. 3. f. 29-33.

l. U. Greensand. England; France.

EREBRATELLA VERNEUILLIANA.

B.M.

ell circular, ornamented with about 15 unequal, sharp, ring plaits; valves nearly equally convex; beak scarcely d ; area short, wide and flat; foramen large, circular; deltidium complete, double. Lon. 6, lat. $6\frac{1}{2}$, alt. 3 lines.

Oratella Verneuilliana, *Davidson*, April 1852, *Ann. Nat. Hist.* 14. f. 4.

l. Greensand. Santander.

EREBRATELLA CANALICULATA.

B.M.

ell ovoid, ornamented with 12-14 radiating and bifurcating z ; dorsal valve semicircular, convex; ventral valve produced m long straight beak, truncated by a large foramen; area and flat; deltidium elongated; loop reflected and doubly bed. Lon. 5, lat. 4, alt. $2\frac{1}{2}$ lines.

Oratula canaliculata, *Ræmer*, 1840, *Kreid.* p. 41. no. 30. pl. 7.

l.

D'Archiac, Mém. Soc. Géol. Fr. 2nd ser. ii. p. 331. pl. 21. f. 15.

Oratella canaliculata, *D'Orb. Prod.* ii. p. 173.

Oristrostra canaliculata, *D'Orb. Prod.* ii. p. 173.

l. U. Greensand. Westphalia; Belgium.

25. TEREBRATELLA MOREANA.

Shell transversely ovate, depressed, radiate wide, nearly simple, angular; ventral valve with central furrow; area wide, foramen small, deltoid dorsal valve rather flat. Lon. 6, lat. 6, alt. 3 lines. Terebratella Moreana, *D'Orb. 1847, Ter. Crét.* f. 13-19.

Fossil. Gault. France.

26. TEREBRATELLA MENARDI.

Shell subcircular, trilobed, truncated or truncated at the beak; valves ornamented with sharp, bifurcate lines; 6 or 7 on the mesial fold and 6-12 on each side; close imbricating lines of growth; area triangular, foramen large; deltidium small, indented; cardinal angle prominent. Lon. $6\frac{1}{2}$, lat. 7, alt. 4 lines.

Terebratula Menardi, *Valenciennes, 1819, in Journ. Min. Nat. Fr.* vi. p. 256. no. 50.

Defr. Dict. Sc. Nat. liii. p. 160.

Buch, Mém. Soc. Géol. Fr. iii. pl. 17. f.

Morris, 1846, Journ. Geol. Soc. p. 384.

Dav. Ann. Nat. Hist. June 1850, pl. 14.

Terebratella Menardi, *D'Orb. Ter. Crét.* iv. t. 1. f. 34-42.

Dav. Mon. Geol. p. 24. pl. 3. f. 34-42.

keeled; foramen small; complete; deltidium double. Lon. 11, lat. 10, alt. 4 lines.

Terebratella neocomiensis, *D'Orb. Ter. Crét.* iv. p. 115. t. 516. f. 1-5.

Fossil. *Neocomian*. France.

28. TEREBRATELLA PECTUNCULOIDES.

B.M.

Shell suborbicular, with seven broad and sharp radiating plaits; surface ornamented with lines more acutely angulated than the lines of growth, which are regular and distinct, especially near the margin; margins deeply dentated; beak short, truncated by a large round foramen; deltidium incomplete; area sharply bordered; loop elongated, doubly attached. Lon. 8, lat. 8, alt. 5 lines.

Terebratulites pectunculoides, *Schlotheim*, 1820, *Petr.* p. 271.

Terebratula pectunculoides, *Buch, Mém. Soc. Géol. Fr.* iii. p. 179. pl. 17. f. 1.

Quenst. Handb. p. 464. pl. 37. f. 24, 25.

Terebratula tegulata, *Schl. Petr.* p. 269.

Zieten, Verst. Würt. p. 58. pl. 43. f. 4.

Terebratula plicata, *Bors.* 1825, *Mem. Tor.* xxix. p. 299. t. 1. f. 17 (not *Lam.*).

Fossil. *Coral Rag*. Germany.

29. TEREBRATELLA LORICATA.

B.M.

Shell trilobed, radiately plaited; plaits numerous, unequal, fasciculated, imbricated by numerous lines of growth; mesial lobe prominent; hinge-line as wide as the shell; beak moderately prominent, truncated by a large foramen; area flat, sharply bordered; deltidium incomplete. Lon. 5, lat. 5, alt. 3 lines.

Terebratulites loricatus, *Schlotheim*, 1820, *Petr.* p. 270.

Terebratula loricata, *Buch, Mém. Soc. Géol. Fr.* p. 183. pl. 17. f. 5.

Quenst. Handb. p. 464. pl. 37. f. 19.

Terebratula truncata, *Zieten, Verst. Würt.* p. 58. pl. 43. f. 6 (not *Sow.*).

Fossil. *Coral Rag*. Germany.

30. TEREBRATELLA SUBPENTAGONA.

Shell subquadrate, ornamented with 10-11 radiating plaits; dorsal valve flattened, slightly depressed in front; front truncated; hinge-line wide and rather straight; beak short and wide; area flat; foramen small; deltidium double, complete. Lon. 7½, lat. 6, alt. 4 lines.

Terebratella subpentagona, Koch, 1837, *Beitr. zur Kenn. Ool.*
p. 21. pl. 1. f. 8.

D'Orb. Prod. i. p. 221.

Fossil. *Lower Lias.* Germany.

5. TRIGONOSEMUS.

Shell plaited, beak produced, curved, with a narrow apical foramen; area large, triangular, flat, marked by the outline of the flat deltidium; cardinal process very prominent.

Trigonosemus (elegans), König, 1822, *Icones Foss.* p. 3. f. 73.

Davidson, 1852, *Mon. Cret.* p. 28.

Delthyridæa (pectiniformis), M'Coy, 1845, *Griffith's Irish Carb. Fossils* (unpublished).

Fissurostro (recurva), *D'Orb. Ter. Crét.* iv. p. 133. t. 520; *Ann. Sc. Nat.* 1848.

Fissirostra, *D'Orb.* 1849, *Cours Elem. Palæont.* p. 89.

1. TRIGONOSEMUS ELEGANS.

B.M.

Shell oval, striato-costate; striæ 30-40, often intercalated; dorsal valve slightly convex, longitudinally depressed in front; beak much produced, rather recurved; area very large, triangular, nearly flat; foramen small and narrow, apical; loop elongated, reflected, doubly attached; cardinal process very prominent. Lon. 11, lat. 9, alt. 5 lines.

Trigonosemus elegans, König, 1825, *Icones Foss.* p. 3. pl. 6. f. 73.

Davidson, *Mon. Cret.* p. 29. pl. 4. f. 1-4.

Terebratula elegans, DeFr. 1828, *Dict. Sc. Nat.* liii. p. 157.

Terebratula recurva, *id.* p. 161.

Fissurostro recurva elegans, et *pectita*, *D'Orb.* 1847, *Ter. Crét.* iv. p. 133-136. t. 520.

Fossil. *Chalk.* England (Norwich); Belgium (Ciply); France.

2. TRIGONOSEMUS PECTINIFORMIS.

B.M.

Shell trapezoidal, depressed, radiately ribbed; ribs straight, dichotomous; *ventral* valve elevated in the middle, depressed at the sides; beak recurved; area nearly as wide as the shell, deep, sharply margined; deltidium triangular, flat; foramen minute, apical; *dorsal* valve triangular, depressed in the centre; cardinal process prominent; loop elongated, reflected, doubly attached. Lon. 6, lat. 6, alt. 3 lines.

Terebratulites pectiniformis, Schlotheim, 1813, *Taschb. vii. p. 113.*

Terebratula pectiniformis, *Buch. Ter.* p. 65. t. 3. f. 31.

Bronn, Leth. p. 652. t. 30. f. 5.

Ræmer, Kreid. p. 41.

Quenst. Handb. p. 463. t. 37. f. 14 (not 12, 13).

Terebratula Hilsana, *Ræmer, Ool.* ii. p. 20. t. 18. f. 9; *Kr.* p. 41.

Fossil. *U. Chalk.* Maestricht.

3. TRIGONOSEMUS PALISSII.

B.M.

Shell orbicular, depressed, radiately plaited; plaits numerous, intercalating; margins crenulated; dorsal valve slightly concave, sinuated in front; hinge-line curved, narrower than the shell; cardinal process prominent; loop doubly attached; ventral valve convex; beak prominent, curved, with a minute apical foramen; hinge-area large, triangular, concave, sharply bordered; deltidium large, triangular, flat. Lon. $7\frac{1}{2}$, lat. 7, alt. 3 lines.

Terebratella Palissii, *Woodward, 1852, Mus. Brit.*

Trigonosemus pulchellus (not *Nilsson*), *Dav. Ann. Nat. Hist.*

June 1850, pl. 15. f. 4 (incorrect).

Terebratula pulchella (part.), *Quenst. Handb.* t. 37. f. 12, 13?

Fossil. *Upper Chalk.* Cibly, Belgium.

4. TRIGONOSEMUS PULCHELLUS.

B.M.

Shell suborbicular, depressed, radiately plaited; plaits intercalating; dorsal valve slightly concave, truncated at the hinge-line; ventral valve convex, with a prominent, incurved and sharp-edged beak; hinge-area large, triangular, concave; foramen apical, minute; deltidium large, triangular, flat; loop elongated, reflected, attached to a septum which reaches the opposite valve. Lon. 7, lat. 6, alt. 2 lines.

Terebratula pulchella, *Nilsson, 1827, Petref. Sues.* p. 36. pl. 3. f. 14.

Ræmer, Kreid. p. 41.

Dalman, Vet. Akad. p. 138.

Fossil. *Upper Chalk.* Sweden.

5. TRIGONOSEMUS INCERTUS.

Shell elongated, oval, striated; valves almost equally convex; beak produced, rounded, moderately recurved; area triangular, nearly flat, short; foramen small, oval; deltidium bordering a small portion of the foramen; striæ about 34, frequently intercalated, and decussated by numerous, fine, concentric lines of growth. Lon. $4\frac{1}{2}$, lat. 4, alt. $2\frac{1}{2}$ lines.

Trigonosemus incertus, *Davidson, Mon. Cret.* p. 31. pl. 4. f. 5.

Fossil. *Lower Chalk (Craie chloritée).* Chard, Somerset.

6. MAGAS.

Shell with a reflected loop attached near the bend to a very prominent central septum (figs. 9-12).

Magas, Sowerby, 1816, *Min. Con.* ii. p. 39. t. 119.

Dav. 1852, *Mon. Cret.* p. 19; *Ann. Nat. Hist.* 1852, p. 37

D'Orb. Ter. Crét. 1847, iv. p. 54.

Terebratulæ spiriferinæ (part.), *Quenst. Handb.* p. 476.

Terebratula, E. 1, *Blainv. Men. Malac.* p. 512.

Figs. 9 & 10. *Magas pumila*.

Fig. 9.

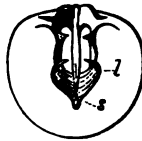


Fig. 10.



Fig. 9.—Interior of dorsal valve.

Fig. 10.—Section of both valves: *s.* septum; *l.* loop; *o.* oral processes.

Figs. 11 & 12. *Magas Evansii*.

Fig. 11.



Fig. 12.



Fig. 11.—Section of dorsal valve.

Fig. 12.—Front view of interior of dorsal valve.

In *M. pumila* the reflected portions of the loop are not united and the deltidium consists of two narrow plates bordering angular foramen.

1. MAGAS CRENULATA.

Shell suborbicular, pale horn-colour, with radiating ribs; rings crenulated; beak short, slightly reflected; hinge-area large and flattened; foramen large, nearly complete; deltidia very

separate; dorsal valve depressed in the centre; loop elongated, doubly attached; central septum more or less elevated, sometimes touching the opposite valve. Lon. 7, lat. 7, alt. 4 lines.

Terebratula crenulata, G. Sowerby, *Thes. Conch.* vii. p. 358. t. 71. f. 96, 97, 98.

Terebratella crenulata, Dav. *Ann. Nat. Hist.* 1852, p. 368.

Hab. Santa Cruz.

2. MAGAS EVANSII.

Shell subovate, with a few unequal, bifurcating ribs, pale red; beak tapering, slightly recurved, with well-defined lateral ridges; foramen incomplete; deltidia small; area flattened; dorsal valve rather flat; loop elongated, doubly attached; septum produced, nearly touching the opposite valve. Lon. 4, lat. $3\frac{1}{2}$, alt. $1\frac{1}{2}$ lines (figs. 11, 12).

Terebratella Evansii, Davidson, 1852, *Ann. Nat. Hist.* p. 368;

Proc. Zool. Soc. p. . pl. . f. 7-9.

Hab. New Zealand. (Mus. Cuming.)

3. MAGAS CUMINGII.

Shell oval, thick, smooth, white, slightly tinged with red; beak produced, tapering, slightly curved, grooved to the summit; area triangular, concave; deltidium obsolete; dorsal valve with a prominent muscular fulcrum; loop doubly attached; septum elevated, reaching the ventral valve. Lon. 5, lat. 4, alt. $2\frac{1}{2}$ lines.

Terebratella Cumingii, Davidson, 1852, *Ann. Nat. Hist.* p. 368;

Proc. Zool. Soc. p. . pl. . f. 10-16.

Hab. New Zealand. (Mus. Cuming.)

4. MAGAS PUMILA.

B.M.

Shell oval, smooth, ornamented with radiating coloured bands; dorsal valve nearly flat, or slightly concave; ventral valve deep, with a well-defined hinge-area; beak recurved; foramen minute; deltidium rudimentary. Lon. 4, lat. 3, alt. lines (figs. 9, 10).

Magas pumila, Sowerby, 1818, *Min. Con.* ii. p. 40. t. 119. f. 1-5.

Park. Org. Rem. p. 227. pl. 7. f. 14.

Brongn. Enc. Paris, pl. 4. f. 9.

Defr. Dict. Sc. Nat. xxviii. p. 13. f. 1.

Bronn, Leth. Geog. p. 662. pl. 30. f. 1.

D'Orb. in Murch. Russia, ii. p. 495. pl. 43. f. 27-30; *Ter.*

Crét. iv. p. 54. pl. 501.

Bouchard & Dav. Bull. Soc. Géol. France, v. 2nd ser. v

pl. 2. f. 1-11.

Magas pumila, Sow. *Thes.* vii. p. 62. pl. 1. f. 7-9.

Dav. Ann. Nat. Hist. v. pl. 15. f. 2, 1850.

Quenst. Handb. p. 476. t. 38. f. 15.

Magas truncata, Rose, in *Woodw. Geol. Norf.* t. 6. f. 9.

Magas magna et punctata, *Woodw. Synopt. Table*, p. 22.

Terebratula concava, Lamarck, 1819, *An. sans Vert.* vi. p. 251. no. 26.

Dav. Ann. Nat. Hist. v. June 1850.

Desh. Lam. ed. 2. vii. no. 26.

Terebratula (G.) *magas*, *Blainv. Man. Malac.* p. 512. t. 54. f. 1, 1825.

Terebratula pumila, Buch, *Mém. Soc. Géol. France*, iii. 1st ser. p. 216. pl. 19. f. 5.

Fossil. *Chalk.* England; Belgium; France; Russia.

5. MAGAS ORTHIFORMIS.

Shell semicircular, wedge-shaped, depressed, ornamented with obscure, unequal radiating plaits, crossed by distinct lines of growth; hinge-line straight, nearly as wide as the shell; dorsal valve flat; ventral valve convex, truncated at the beak; area flat; foramen a wide, angular notch, bored by the deltidia. Lon. 4, lat. $4\frac{1}{2}$, alt. 3 lines.

Terebratula orthiformis, *D'Archiac*, 1847, *Mém. Soc. Géol. Fr.* 2 ser. p. 333. pl. 22. f. 4.

Terebratella orthiformis, *D'Orb. Prod.* ii. p. 173.

Orthis millepunctata, *Koninck*.

Magas orthiformis, *Dav. Monogr. Cret. Brach.* p. 22.

Fossil. *U. Greensand.* Belgium.

7. BOUCHARDIA.

Shell with a minute foramen at the apex of the beak; deltidium solid; apophysis anchor-shaped, the central septum being furnished with two short lamellæ.

Terebratula, § E, *Blainv. D. S. N.* liii. 145, 1828.

Bouchardia (rosea), *Davidson*, *Bull. Soc. Géol. France*, 1849;

Ann. Nat. Hist. 1852, p. 372.

King, *Permian Fossils*, p. 81, 1850.

Bouchardia tulipa.

Fig. 13.

Fig. 14.

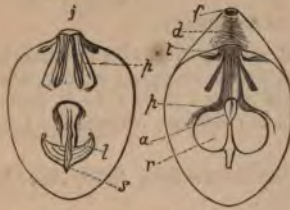


Fig. 13.—Interior of dorsal valve: *j*. cardinal process; *p*. hinge-plate; *l*. loop; *s*. septum.

Fig. 14.—Interior of ventral valve: *f*. foramen; *t*. teeth; *a*. adductor scar; *p*. peduncle scars; *r*. retractor scars.

The great muscular impressions in *Producta*, which correspond to these retractor scars, have been mistaken for points of attachment of the peduncle.

1. BOUCHARDIA TULIPA.

B.M.

Shell oblong-oval, rather depressed, thick, smooth, pale rose-red, with darker rays; margins even; beak rather produced, straight; perforation very small, entire; hinge-area rather wide; deltidia united; dorsal valve oval, flattish; cardinal fulcrum (figs. 13, 14).

Terebratula tulipa, *Blainv. Dict. Sci. Nat.* liii. 144, 1828.

Terebratula rosea, *Mawe, Introd. Conch.* t. . f. . .

Sow. Gen. f. 4; *Thes. Conch.* vii. p. 357. t. 71. f. 74-77.

Desh. in Lamk. Hist. ed. 2. vii. p. 350.

King, Ann. & Mag. N. H. xviii. 34. 38. 1846.

Pachyrhynchus roseus, *King, Permian Fossils*, p. 70.

Bouchardia rosea, *Davidson, Bull. Soc. Géol. France*, 1849, pl. 1. f. 1-6.

King, Permian Fossils, p. 81.

Hab. Brazil (Rio, 13 fathoms, J. M'Gillivray).

7*. WALTONIA?

Shell oval, smooth, punctate; valves convex; margins sinuated; beak truncated by a large, incomplete foramen; deltidia separate; loop reduced to two simple lamellæ, furnished with oral processes, and attached to a prominent central septum.

Waltonia (Valenciennii), *Dav.* 1850, *Ann. Nat. Hist.* v. p. 475; 1852, p. 372.

Waltonia differs from *Terebratella* in wanting the reflected portion of the loop; it may, possibly, have been broken away; only one minute specimen is known.

1. WALTONIA VALENCIENNII.

Shell small, oval, red, smooth, with the margin fimbriated, the plaits radiating in front, diverging at the sides; dorsal valve nearly flat; ventral valve convex; beak prominent; foramen large and incomplete; deltidia disunited. Lon. 2½, lat. 2, alt. 1 line.

Waltonia Valenciennii, *Davidson*, 1850, *Ann. Nat. Hist.* pl. 15. f. 1; 1852, p. 370.

Hab. New Zealand (Mus. Paris).

8. MEGERLIA.

Shell transversely oblong, with a wide and rather straight hinge-line; area distinct; foramen incomplete; loop rather short, reflected, triply attached,—once to the hinge-plate, and twice to the septum, by processes from the crura and also from the reflected portion of the loop (fig. 16).

Terebratula, § D, *Blainv. Dict. Sci. Nat.* liii. 145, 1828.

Megerlia (*truncata*), *King*, 1850, *Permian Fossils*, 81. 145.

Dav. 1852, *Ann. Nat. Hist.* p. 369.

Ismenia (*pectunculus*), *King*, *Perm. Foss.* 81. 142, 1850.

Orthis, sp., *Philippi*, *Moll. Sicil.*

Kingena (*lima*), *Davidson*, 1852, *Mon. Cret.* p. 41. f. 5, 6.

Terebratulæ expansæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.

Terebratulæ annuliferæ (part.), *Quenst. Handb.* p. 462.

Megerlia truncata.

Fig. 15.

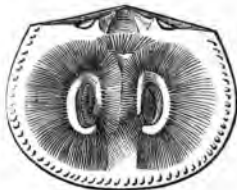


Fig. 16.

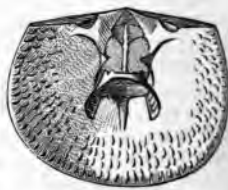


Fig. 15.—Interior of dorsal valve with the animal.
Fig. 16.—Ditto, showing the loop.

The *Megerliæ* often resemble *Argiope* in shape, and in having corresponding ribs; the denticulation of the internal margin of the valves in some species may be compared with the larger marginal processes of the latter genus.

* *Loop doubly attached.* Megerlia.

1. MEGERLIA TRUNCATA.

B.M.

Shell transversely oblong, or suborbicular, with a long straight hinge-line, horn-coloured, with very fine radiating striæ; beak truncated; hinge-area flat and wide; foramen large, incomplete; deltidia minute, separate; dorsal valve nearly flat, slightly depressed in front; interior of both valves spinulose; loop short, doubly attached, and giving off from its reflected portion two additional processes to the central septum. Lon. 6, lat. 9 lines (figs. 15, 16).

List. Conch. t. 462. f. 23.

Anomia truncata, Linn. S. N. 1152.

Born, Mus. 118. t. 6. f. 14.

Chemnitz, Conch. Cab. viii. 90. t. 77. f. 701.

Gmelin, S. N. 3343.

Dillw. R. S. i. p. 292.

Poli, Test. Sicil. p. 191. t. 30. f. 16, 17.

Pallas, Misc. Zool. t.

Terebratula, Lamk. E. M. t. 243. f. 2.

Terebratula truncata, Retz. Nov. Gen. p. 14.

Lamk. Hist. vi. p. 247; ed. 2. vii. p. 333.

Sow. Thes. Conch. vii. p. 354. t. 71. f. 64-67.

De Buch, Mem. p. 66.

Blainv. D. S. N. liii. p. 139.

Philippi, Moll. Sicil. i. p. 95. t. 6. f. 12.

Quenst. Handb. p. 462. t. 37. f. 10.

Terebratella truncata, D'Orb. Ann. Sci. Nat. 1848, viii. p. 66. t. 7. f. 11, 12, 16, 37.

Terebratula monstrosa, Scacchi, Oss. Zool. ii. p. 1.

Anomia disculus, Pallas, Misc. Zool. p. 184. t. 14. f. 1 (1766).

Terebratula (D.) disculus, Blainv. D. S. N. liii. p. 138.

Orthis truncata, Philippi, Sicil. ii. p. 69.

Megerlia truncata, King, 1850, Permian Fossils, 81. 145.

Dav. Ann. Nat. Hist. 1852, p. 369.

Terebratula oblita, Michelotti, Brach. p. 4.

Orthis oblita, Mich. Faun. Mioc. pl. 2. f. 2\.

Megathyris oblita, *D'Orb.* 1852, *Prod.* iii. p. 134.

Hab. Mediterranean, on corals, at 60–105 fathoms.

Fossil. *Miocene.* Turin; Gibraltar; Malta.

Terebratula irregularis, *Blainv.* *D. S. N.* liii. 140 = ? *Terebratula* ostracea, *Blainv.* *D. S. N.* liii. 145, is perhaps a variety.

** *Loop trebly attached.* *Ismenia.*

2. MEGERLIA PULCHELLA.

Shell oval, pointed at the beak, smooth, whitish, with a few radiating red lines; margins rather flexuous; foramen large, incomplete; deltidia small, separate; area indistinct; dorsal valve flattened; loop small, trebly attached. Lon. 3, lat. 2, alt. 1 line.

Terebratula pulchella, *G. Sowerby*, *Thes. Conch.* vii. p. 360. pl. 71. f. 105–107.

Megerlia pulchella, *Dav. Ann. Nat. Hist.* 1852, p. 369.

Hab. Philippines; Cocos Island.

3. MEGERLIA PECTUNCULUS.

B.M.

Shell pentagonal, with seven corresponding ribs to each valve; ribs unequal, projecting beyond the margin, four large and three intermediate smaller; both ribs and interspaces ornamented with regular squamose lines of growth; margins even; beak short, truncated by a large foramen; deltidium incomplete; loop small, trebly attached. Lon. 6, lat. 7, alt. 4 lines.

Terebratulites pectunculus, *Schlotheim*, 1820, p. 272.

Terebratula pectunculus, *Buch, Mém. Soc. Géol. Fr.* iii. p. 188. pl. 17. f. 1*.

Quenst. Handb. p. 466. t. 37. f. 23, 25.

Terebratella pectunculus, *D'Orb. Prod.* i. p. 377.

Ismenia pectunculus, *King, Permian Foss.* 81. 142.

Fossil. *Oxford Clay.* France.

Coral Rag. Bavaria; Wurtemberg.

4. MEGERLIA LIMA.

B.M.

Shell orbicular or slightly pentagonal, smooth, or minutely granulated; dorsal valve nearly flat; ventral deeply convex; beak short, recurved; foramen moderate; deltidium rudimentary, concealed; loop rather long, attached to the median septum by crural processes and also by processes from the reflected and expanded termination. Lon. 9, lat. 6, alt. 5 lines.

- Terebratula lima*, *DeFrance, Dict. Sc. Nat.* 1828, t. liii. p. 156.
D'Orb. Ter. Crét. iv. p. 98. pl. 512. f. 1-5.
- Terebratula pentangulata*, *Woodward, Geol. Norf.* 1833, pl. 6. f. 10.
- Terebratula ventro-plana*, *Ræmer, Nordd. Ool.* p. 51. t. 2. f. 7.
- Terebratula Hebertiana*, *D'Orb.* 1847, *Ter. Crét.* pl. 514. f. 5, 11.
- Terebratula spinulosa*, *Morris*, 1847, *Ann. Nat. Hist.* xx. p. 253. pl. 18. f. 6.
- Terebratula sex-radiata*, *J. Sow.* 1850, *Dixon's Geol. Sussex*, p. 348. pl. 27. f. 10.
- Kingena lima*, *Davidson, Mon. Cret.* p. 42. pl. 4. f. 15-28; pl. 5. f. 1-4.
- ? *Terebratula arenosa*, *Deshayesii*, subconcaua, et subarenosa, *D'Archiac*, 1847, *Mem. Soc. Géol. Fr.* ii. pt. 2.
- Fossil. Gault, Upper Greensand, Chalk.* England; France.

*** *Doubtful species.*

5. *MEGERLIA? WACOENSIS.*

Shell subpentagonal, ventricose, smooth; margins even, front straight; dorsal valve convex, with indications of a long internal septum; ventral valve gibbose; beak obtuse, recurved, laterally keeled; foramen small and round; deltidium distinct. Lon. 9, lat. 8, alt. 6½ lines.

Terebratula Wacoënsis, *Ræmer*, 1852, *Kreid. Texas*, p. 81. t. 6. f. 2.

Fossil. Chalk. Guadeloupe.

6. *MEGERLIA? OVATA.*

B.M.

Shell oval or elongated, depressed; surface ornamented with minute, wavy, spinulose striæ; dorsal valve nearly flat, with a central depression in front, increasing with age; ventral valve convex; beak produced, nearly straight, lateral ridges distinct; foramen moderate, circular; deltidium small, complete. Lon. 19, lat. 13, alt. 11 lines (large specimen).

Terebratula ovata, *Sowerby*, 1812, *Min. Con.* i. p. 46. t. 15. f. 3.
Davidson, Mon. Cret. p. 47. t. 4. f. 6-13 (not *Mantell, Geol. S. Downs*, 1822).

Terebratula lachrymosa, *D'Orb.* 1847, *Ter. Crét.* iv. p. 99. pl. 512. f. 6-11.

Terebratula Keyserlingi, *D'Arch.*

Fossil. Upper Greensand. England; France.

7. *MEGERLIA? ARCUATA.*

Shell oval, attenuated posteriorly, slightly truncated in front, ornamented with diverging spinulose striæ; dorsal valve gibbous at the umbo, depressed in front; beak pointed, foramen minute, deltidium elongated, triangular, double. Lon. 5, lat. 3½, alt. 3 lines.

Terebratula arcuata, *Ramer*, 1840, *Nordd. Kreid.* p. 44. t. 7. f. 18.
Bronn, Index, p. 1229.

Fossil. *Neocomian (Hilsconglomerate)*. Westphalia.

8. *MEGERLIA? RUGULOSA.*

B.M.

Shell oblong, front margin truncated or slightly indented, surface minutely wrinkled; dorsal valve convex, sometimes depressed in front; ventral valve deep; beak rather produced, lateral ridges obscure; foramen large, circular; deltidium small; loop——? Lon. 11, lat. 8, alt. 7 lines.

Terebratula rugulosa, *Morris & Davidson*, 1847, *Ann. Nat. Hist.* xx. p. 253. pl. 18. f. 5.

Dav. Mon. Cret. p. 49. pl. 4. f. 14.

Terebratula disparialis (part.), *D'Orb. Ter. Crét.* 1847, iv. p. 100. pl. 512. f. 12, 13 (not 16, 17, which represent *T. squamosa*).

Fossil. *U. Greensand; Chalk-marl.* England; France.

9. *MEGERLIA? VERNEULI.*

Shell oval, elongated, depressed, ornamented with squamose lines of growth and diverging spinulose striæ; margins slightly flexuose in front; beak produced, nearly straight, truncated by a large circular foramen; deltidium elongated. Lon. 5, lat. 3, alt. 2 lines.

Terebratula Verneuli, *D'Arch.* 1847, *Mem. Geol. Soc. Fr.* ii. p. 326. pl. 20. f. 4.

D'Orb. Prod. ii. p. 172.

Fossil. *U. Greensand.* Belgium.

10. *MEGERLIA? NANA.*

B.M.

Shell small, orbicular, depressed, smooth, with obscure radiating furrows, and numerous lines of growth near the margin; punctation conspicuous; dorsal valve flat, with a strong internal median plate; ventral valve convex; beak rounded, much recurved; foramen small; deltidium concealed*. Lon. 6, lat. 5½, alt. 3½ lines.

* Three species having been sent with this name, by Dr. Braun, the description is taken from the specimen to which the label was affixed.

- Terebratula nana*, Münster, *Bair.* p. 48.
Braun, Bair. p. 44.
Ræmer, Nordd. Ool. p. 52. t. 2. f. 20.
Bronn, Index, p. 1242.

Fossil. *Oxford Clay.* Bavaria.

11. MEGERLIA? DESLONGCHAMPSII.

Shell small, oval, rather depressed, covered with minute tubular asperities, between which the punctations are visible; margins even; front truncated; beak prominent; foramen moderate, incomplete; deltidia separate. Lon. $3\frac{1}{2}$, lat. 3, alt. $1\frac{1}{2}$ lines.

Terebratula Deslongchampsii, Davidson, June 1850, *Ann. Nat. Hist.* pl. 15. f. 6.

Fossil. *Lias.* Normandy.

12. MEGERLIA? HIPPOPUS.

B.M.

Shell ovate or rounded, inflated, smooth; valves unequal, the ventral largest, ventricose, with a short recurved umbo; foramen small; deltidium triangular; dorsal valve convex, with a deep medio-longitudinal depression. Lon. 14, lat. 14, alt. 10 lines.

Terebratula hippopus, Ræmer, 1841, *Kreid.* p. 114. t. 16. f. 28.
D'Orb., Ter. Crét. iv. p. 85. t. 508. f. 12-18.
Geinitz, Kreid. p. 87.

Terebratula resupinata, Pusch, *Polens Pal.* p. 23. t. 4. f. 6 (not *Sow.*).

Fossil. *Neocomian; Chalk.* France; Belgium.

See also *Terebratula irregularis*, *Blainv. D. S. N.* liii. 140=*Terebratula ostracea*, *Blainv. D. S. N.* liii. 146.

9. MORRISIA.

Shell with a large foramen, encroaching equally on both valves; ventral valve with a small, straight area; loop not reflected, united to a small forked process in the centre of the valve; structure coarsely punctate (fig. 18).

Animal with sigmoid arms, destitute of spiral termination (fig. 17).

Morrisia (appressa), Dav. 1852, *Ann. Nat. Hist.* p. 371.
Orthis, sp., *Philippi*, 1844, *Moll. Sicil.* ii. p. 69.

Morrisia anomioides.

Fig. 17.

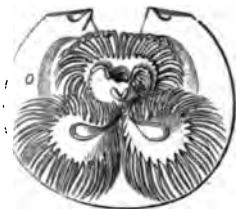


Fig. 18.

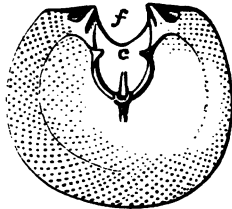


Fig. 17.—Interior of the dorsal valve with the animal: *o.* the orange-coloured ovaries.

Fig. 18.—Ditto showing the loop: *c.* oral processes; *f.* foramen.

1. MORRISIA ANOMIOIDES.

Shell minute, circular, depressed, smooth, olive-green, translucent; foramen large and round, encroaching equally on both valves; area of ventral valve chiefly occupied by the foramen; deltidia rudimentary; dorsal valve deeply notched at the umbo; loop consisting of two simple plates (*crura*) attached to the sides of the umbonal notch, and to a central, bifurcated process. Lon. 1, lat. $1\frac{1}{2}$, alt. $\frac{1}{2}$ line (lat. 3 lines, *Forbes*) (figs. 17, 18).

Terebratula anomioides, *Scacchi*.

Philippi, *Moll. Sicil.* ii. p. 69. t. 18. f. 9, 1844.

Terebratula appressa, *Forbes*, 1844, *Brit. Assoc. Report on Egean Moll.* p. 167, 193 (read 1843).

Morrisia seminulum, *Dav. Ann. Nat. Hist.* 1852, p. 371 (not *Ter. seminulum*, *Phil.*).

Morrisia anomioides, *Dav.* 1852, *Proc. Zool. Soc.* p. . pl. . f. 29.

Hab. Mediterranean, at 95 fathoms.

2. MORRISIA LUNIFERA.

Shell minute, subcordate, compressed, front margin slightly indented; area moderate; internal skeleton consisting of a semi-lunar plate in the centre of the dorsal valve. Lon. and lat. $1\frac{1}{2}$ line.

Terebratula lunifera, *Philippi*, 1836, *Moll. Sicil.* i. p. 97. t. 6. f. 16 (not *Sow.*).

Orthis lunifera, *Philippi*, *Moll. Sicil.* ii. p. 69.

Argiope Forbesii (syn.), *Dav. Ann. Nat. Hist.* May 1852, p. 373.

Hab. Mediterranean.

3. MORRISIA ? EUSTICTA.

Shell small, orbicular, depressed, smooth, with a few obscure lines of growth, densely punctate and ornamented with radiating rows of minute points; dorsal valve convex, with an obtuse longitudinal ridge; beak not prominent; foramen large, incomplete; deltidium rudimentary. Lon. $5\frac{1}{2}$, lat. 5 lines.

Terebratula eusticta, Philippi, 1836, *Moll. Sicil.* i. p. 98. t. 6. f. 9.

Orthis eusticta, Phil. 1844, *Moll. Sicil.* ii. p. 70.

Fossil. *Pliocene*. Palermo.

10. KRAUSSIA.

Shell subcircular, with a nearly straight hinge-line; beak truncated; foramen large and round; deltidia small, disunited; beak laterally keeled; hinge-area flat; dorsal valve longitudinally depressed; internal skeleton consisting of a small forked process arising from the septum, near the centre of the valve (fig. 19).

Kraussia (rubra), Davidson, 1852, *Ann. Nat. Hist.* p. 369.

Terebratulæ annuliferæ (part.), *Quenst. Handb.* p. 463.

Fig. 19. *Kraussia rubra*.

Fig. 20. *K. Lamarckiana*.



Fig. 19.—Interior of dorsal valve, showing the forked apophysis in the centre, and the branching pallial vessels on each side.

Fig. 20.—Interior of dorsal valve with the animal, from a dry specimen in the British Museum.

The brachial apparatus of *Kraussia Lamarckiana* (fig. 20) is like that of *Terebratula* and *Terebratella*, but the arms are unusually small in the species examined, and their fringes do not extend more than half way towards the border of the shell; they are supported solely by the small forked process above described, no other part of the apophysary system being calcified.

1. KRAUSSIA RUBRA.

B.M.

Shell suborbicular, ornamented with numerous, radiating ribs, sometimes bifurcating, or augmenting by intercalation; colour pale, with red rays and bands of growth; dorsal valve (see fig. 19) slightly depressed in the centre, in front, furnished internally with

BRACHIOPODA.

A dorsal valve convex, expanded at the extremities; central valve deep, simple hinge-area far encroached upon by the large triangular foramen; beak small, incomplete. Len. 11, lat. 13, alt. 5 lines by 11.

BRACHIOPODA VERA *Fuchs*, 1776. *Misc. Zool.* t. 14. f. 2, 11.

BRACHIOPODA VERA ? *J. Spies*, *Thesaurus*, 1785. viii. p. 94. t. 77. f. 703.

BRACHIOPODA VERA, *Fuchs*, 1776. *S. N.* p. 3347.

Quoy & G. S. Voy.

Terebrantia vera, *Blüsch*, *D. S. N.* iii. p. 138, 1828.

Souv. Voy. Concâ, vii. p. 368. t. 10. not 9 & 11).

Terebrantia verissima, *Kruss*, *Suidaf. Moll.* p. 32. t. 2. f. 10 (not *vera*).

Kraussia vera, *Darwin*, *Ann. Nat. Hist.* 1852, p. 370.

Loc. S. Africa.

2. *BRACHIOPODA PUGNATA*.

B.M.

Shell transversal, rounded in front, pale horn-colour, with obscure radiating striae; beak obtuse, reflected; hinge-area small; perforation large, incomplete; beak small, triangular; dorsal valve fattish, with a longitudinal central depression; apophysis central, forked. Len. 11, lat. 5, alt. 4 lines.

Pugnata, *Quoy & G. S. Voy.*, *Thes.* C. C. viii. p. 78. t. 76. f. 688.

BRACHIOPODA PUGNATA, *Quoy & G. S. Voy.*, p. 285.

Terebrantia pugnata, *J. Suidaf. Thes. Concâ*, vii. p. 346. t. 68.

Quoy & G. S. Voy.

Sou. Voy. Nat. Hist. 1847, p. 454.

Kruss, *Suidaf. Moll.* p. 33.

Kraussia pugnata, *Darwin*, *Ann. Nat. Hist.* 1852, p. 370.

Loc. S. Africa.

3. *BRACHIOPODA PISUM*.

B.M.

Shell transversely ovate, ribbed, with obscure radiating ribs, slightly rounded; margins minutely crenulated, deeply sinuated in front; beak slightly produced, obtuse; foramen large, incomplete; beak small; hinge-area small; dorsal valve with a rather straight hinge-line and a deep central longitudinal furrow; apophysis central, forked. Len. 4½, lat. 5, alt. 3 lines.

Terebrantia pisum, *Vilenciennes*, in *Lamarck*, *Hist.* 1819, ed. 2. vii. p. 39.

G. B. Souv. Thes. Concâ, vii. p. 345. t. 69. f. 37, 38, 39.

Kraussia pisum, *Darwin*, *Ann. Nat. Hist.* 1852, p. 370.

Terebrantia Natalensis, *Kruss*, *Suidaf. Moll.* p. 33. t. 2. f. 11.

Kuster, *Neue Concâ*, vii. p. 1. t. 2. f. 4-7.

Quoy & G. S. Voy., p. 463. t. 37. f. 11.

Hab. S. Africa not Sydney.

4. KRAUSSIA ALGOENSIS.

B.M.

"Shell suborbicular, slightly acuminate behind, rather lobed in front, whitish, radiately striated; mesial ridge distinct, roundish; perforation large, incomplete; margin very minutely crenulated." Lon. 5½, lat. 5 lines.

Terebratula Algoënsis, G. Sowerby, *Thes. Conch.* vii. p. 362. t. 91. f. 91, 92.

Dav. Ann. Nat. Hist. 1852.

Hab. Algoa Bay (Bowerbank).

(Founded on a single ventral valve, which is scarcely different from *T. pisum*.)

5. KRAUSSIA LAMARCKIANA.

B.M.

Shell suborbicular, striated with fine, bifurcating ridges, light yellow; hinge-area well-defined, flat; foramen large, incomplete; deltidia small; dorsal valve with central longitudinal groove; apophysis central, bifurcating; margins of the valves thickened internally and spinulose. Lon. 3, lat. 3, alt. 1½ lines (fig. 20).

Terebratella Lamarckiana, Davidson, 1852, *Ann. Nat. Hist.* p. 370;

Proc. Zool. Soc. p. . pl. . f. 22, 23.

Hab. Sydney, Australia; New Zealand.

6. KRAUSSIA DESHAYESII.

Shell suborbicular, radiately ribbed, reddish brown, with six red rays; beak rather produced; foramen moderate, incomplete; deltidia separate; dorsal valve depressed in the centre; apophysis central, forked. Lon. 6, lat. 6½ lines.

Terebratula Capensis, Adams, 1850, *Zool. Samarang*, p. 71. pl. 21.

f. 4 (not Gmelin).

Kraussia Deshayesii, Davidson, 1852, *Ann. Nat. Hist.* p. 370.

Hab. Cape of Good Hope, at 120 fathoms.

Order II. CRYPTOBRACHIA.

Oral arms sunk into grooves in the convex centre of the inner surface of the ventral valve.

Cryptobrachia, Gray, *Ann. & Mag. N. H.* ii. 1848, p. 435; in *Wieg. Arch.* 1849, p. 98; and *this Cat.* p. 8.

Brachiopodes cirridæ (Cirrhidæ), part., *D'Orb. Cour. Elem. Paleont.* p. 80, 1849.

ARGIOPE.

Shell transversely oblong, or semicircular, smooth, or ornamented with corresponding ribs, strongly punctate; hinge-line wide; margins even; dorsal valve depressed; ventral valve truncated at the beak; area flat; foramen large, rounded; deltidium rudimentary; interior of dorsal valve furnished with one or more prominent, submarginal septa (fig. 21-23); loop originating at the base of the dental sockets, and folded into two or more lobes occupying the interspaces of the radiating septa, to which they adhere on their inner sides.

Animal with oral arms united by membrane, forming a disk, and folded so as to form two or four lobes; mantle extending to the margin of the valve and closely adherent (fig. 21).

Terebratula, § F. (& D. part.), *Blainv. D. S. N.* liii. 145, 1828.

Gray, *P. Z. Soc.* 1847.

Argiope (*decollata*), *Desl.* 1842, *Mém. Soc. Lin. Normand.* viii.

Dav. 1852, *Ann. Nat. Hist.* p. 372.

Megathyris (*decollata*), *D'Orb.* 1848, *Ann. Sc. Nat.*

Forbes & Hanley, *Brit. Moll.*

Orthis, sp., *Philippi*, *Moll. Sicil.*

Hagenow, *Neues Jahrb.*

Terebratula, sp., *Lamarck.*

Argioidæ, *King*, *Permian Foss.* 81. 142.

Fig. 21. *Argiope decollata*.

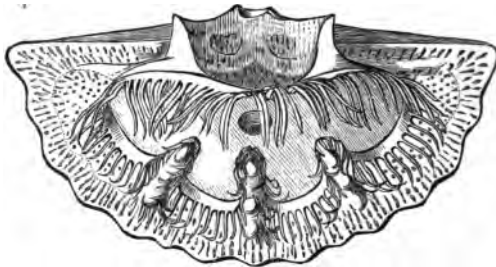


Fig. 21.—Dorsal valve with the animal, highly magnified, from a specimen in the cabinet of Thomas Davidson, Esq. The oral aperture is seen in the centre of the fringed brachial disk.

Fig. 22. *A. decollata*.Fig. 23. *A. Neapolitana*.

* Loop four-lobed. Argiope.

I. ARGIOPE DECOLLATA.

B.M.

Shell transversely semicircular, with a few, smooth, obtuse, radiating ribs, which correspond in each valve; colour pale brown; margins thickened internally; hinge-line straight, as wide as the shell; ventral valve deep, truncated by the wide and flat hinge-area; foramen a wide and deep notch, bordered by the rudimentary deltidia; dorsal valve furnished interiorly with three or five radiating septa, and a four-lobed loop attached to the septa, and sometimes blending with the shell in their interspaces. Lon. 4, lat. $2\frac{1}{2}$, alt. $1\frac{1}{2}$ lines (figs. 21, 22).

Anomia decollata, Chemnitz, *Conch. C.* viii. p. 96. t. 78. f. 705.

Dillw. R. S. i. p. 292.

Anomia detruncata, Gmelin, *S. N.* p. 3347.

Terebratula, Lamk. *E. M.* t. 243. f. 10.

Terebratula decollata, Desh. in Lamk. *Hist.* ed. 2. vii. p. 351.

Sow. Thes. Conch. vii. p. 355. t. 71. f. 68, 69, 70.

Terebratula detruncata, Blainv. *D. S. N.* liii. p. 141, 1828.

Philippi, Moll. Sicil. i. p. 96. t. 6. f. 14 a-h.

Megathiris detruncata, D'Orb. *Ann. Sc. Nat.* 1848.

Terebratula aperta, Blainv. *Dict. Sci. Nat.* liii. 144, 1828.

Terebratula dimidiata, Scacchi, *Oss. Zool.* ii. p. 17.

Terebratula cardita, Risso, *E. Merid.* f. 180? 1826.

Terebratula urna antiqua, Risso, *Eur. Mer.* f. 177, 1826.

Terebratula squamata, (Eichw.) Bronn, *Leth.* 1837, p. 908.

Eichwald, 1852, Leth. Ross. p. 54. t. 3. f. 12 (incorrectly figured?).

Orthis detruncata, Philippi, *Moll. Sicil.* ii. p. 69, 70.

Argiope detruncata, Deslongchamps, *Mém. Lin. Soc. Normand.* vii. p. 1, 1839.

Argiope decollata, Dav. *Ann. Nat. Hist.* 1852, p. 373.

Hab. Mediterranean, on corals, 45-105 fathoms.

Fossil. *Pliocene.* Calabria.

Miocene. Gibraltar (James Smith, F.R.S.).

** *Loop two-lobed.* *Cistella* (Gray).

2. ARGIOPE CUNEATA.

Shell very small, transversely subquadrate, with a few obscure radiating ribs; colour pale, with the interspaces of the ribs bright red; interior of dorsal valve with a single, central septum and a two-lobed loop. Lon. 2, lat. $2\frac{1}{2}$ lines.

Terebratula cuneata, *Risso, Eur. Merid.* f. 179, 1826.

Blainv. D. S. N. liii. 146.

Philippi, Moll. Sicil. i. p. 96. t. 6. f. 13.

Sow. Thes. Conch. p. 355. t. 71. f. 83, 84.

Anomia Pera, *Mühlfeldt, Berlin Gesell.* i. p. 205, 1829.

Orthis Pera, *Philippi, Moll. Sicil.* ii. p. 69.

Terebratula Soldamiana, *Risso, Eur. Merid.* f. 178, 1826.

Blainv. D. S. N. liii. 146.

Terebratula detruncata, *Scacchi, Catal.* p. 17 (not *Gmel.*).

Argiope cuneata, *Dav. Ann. Nat. Hist.* 1852, p. 373.

Hab. Mediterranean, 28-69 fathoms.

3. ARGIOPE NEAPOLITANA.

B.M.

Shell minute, pale brown, translucent, smooth, or obscurely ribbed; beak produced and pointed; area narrow; foramen deep, bordered by the deltidia; dorsal valve subquadrate, slightly lobed in front; margins thickened internally; septum single, central; loop two-lobed. Lon. 2, lat. 2 lines (fig. 23).

Terebratula Neapolitana, *Scacchi, Oss. Zool.* ii. p. 18, 1833.

Orthis Neapolitana, *Philippi, Moll. Sicil.* ii. p. 69.

Terebratula seminulum, *Phil. Moll. Sicil.* i. p. 97. t. 6. f. 15 (bad).

G. B. Sow. Thes. Conch. vii. p. 356. t. 71. f. 87, 88.

Terebratula lunifera, *G. Sow. Thes. Conch.* t. 71. f. 85, 86 (not *Phil.*).

Argiope Forbesii, *Davidson, Ann. Nat. Hist.* May 1852, p. 373.

Argiope Neapolitana, *Dav. June 1852, Proc. Zool. Soc.* p.

pl. . f. 24, 25.

Hab. Mediterranean, in deep water (60-105 fathoms).

Fossil. *Pliocene.* Tarentum.

4. ARGIOPE CISTELLULA.

Shell minute, smooth, horn-coloured, globular, truncated or slightly indented in front; beak prominent; foramen large; deltidia narrow; interior of dorsal valve with a single median septum and a two-lobed loop. Lon. 1, lat. 1, alt. $\frac{1}{2}$ line.

Terebratula cistellula, *Searles Wood, 1840, Ann. Nat. Hist.* 5.

Megathyris cistellula, *Forbes & Hanley, Brit. Mollusca*, pl. 51, 52.

Argiope cistellula, *Dav. Mon. Tertiary Brach.* part 1. p. 10. pl. 1. f. 13; *Ann. Nat. Hist.* 1852, p. 373; *Proc. Zool. Soc.* p. . pl. . f. 28.

Hab. Zetland, in 40 fathoms (M'Andrew).

Fossil. Miocene. Suffolk (Searles Wood).

5. ARGIOPE? PUSILLA.

Shell minute, obtusely subtriangular, depressed, smooth; dorsal valve transversely oblong, depressed in front; ventral valve with a prominent beak; hinge-line straight, nearly as wide as the shell (area flat; deltidium large, triangular, striated transversely; foramen minute, apical ??). Lon. 1 line.

Terebratula pusilla, *Eichwald*, 1852, *Leth. Ross.* p. 55. t. 3. f. 13. *Bronn, Index*, p. 1247 (not *Sow.* or *Philippi*).

Terebratula pygmaea, (*Eichw.*) *Bronn, Leth.* p. 908 (not *Schl.*).

Fossil. Miocene. Volhynia.

Argiope cistellula, variety of?

6. ARGIOPE DECEMCOSTATA.

B.M.

Shell minute, somewhat pentagonal, ornamented with about ten corresponding ribs; larger valve deep; area as wide as the shell, deep, triangular; foramen large; deltidia narrow, rudimentary; dorsal valve rather flat, furnished internally with a single elevated, central septum (and a very fragile two-lobed loop. *Suess*). Lon. 1, lat. 1, alt. $\frac{1}{2}$ line.

Terebratula decemcostata, *Ræmer*, 1840, *Nord. Kreid.* p. 41. t. 7. f. 13.

Bronn, Index Pal. p. 1234.

Argiope decemcostata, *Dav. Mon. Cret.* p. 16. pl. 3. f. 1-13.

Terebratula Duvalii, *Dav.* 1847, *Charlesworth's Journal*, p. 113. pl. 18. f. 15-18.

Megathiris cuneiformis, *D'Orb.* 1847, *Ter. Crét.* p. 147. pl. 521. f. 1-11; *Prod.* ii. p. 259.

Fossil. Chalk. Sweden; England; Belgium; Germany; France; Transylvania.

7. ARGIOPE BRONNI.

Shell minute, cuneiform, depressed, with eight corresponding ribs to each valve; area wide and distinct; foramen large. Lon. 2, lat. 3, alt. 1 lines.

Orthis Bronni, *Hagenow*, 1842, *Neues Jahrbuch*, p. 543. t. 9. f. 7.

Terebratula Bronni, *Ræmer, Kreid.* p. 41.

Bronn, Index, p. 1231.

Fossil. Chalk. Rügen, Baltic.

Terebratula Buchii, *Bronn, Index*, p. 1231.

Fossil. *Chalk*. Rügen.

9. ? ARGIOPE DEPRESSA.

Shell transverse, depressed, radiately 10-ribbed; narrow; valves unequal, the ventral convex, the dorsal triangular, narrow. Lon. 2, lat. 3 lines.

Megathyris depressa, *D'Orbigny*, 1847, *Ter.* t. 521. f. 12-16.

Fossil. *Chalk*. France.

10. ARGIOPE HIRUNDO.

Shell minute, quadrate, depressed, side and end rounded; valves with two diverging ribs; beak large. Lon. and lat. 1 line.

Orthis hirundo, *Hagenow*, 1842, *Neues Jahrb.*

Terebratula hirundo, *Bronn, Index*, p. 1238.

Fossil. *Chalk*. Rügen.

Fam. 2. THECIDIDÆ.

Shell thick, punctate, rounded or oval, more or less attached by the umbo of the ventral valve, or fixed (fig. 25) with the umbo rather produced and

Animal:—Mantle extending to the margin of the valves, closely adherent; oral arms elongated, folded upon themselves, fringed with long cirri on their outer margins, and supported by a complicated shelly loop (fig. 26).

Craniaceæ (part.), *Menke, Syn. ed. 1. p. 56, 1828.*

Craniacea (part.), *Menke, Syn. ed. 2. p. 96, 1830.*

Cranæ (Les Cranies), part., *Féruss. Tabl. Syst. p. 38, 1821.*

Thecideidæ, *Gray, Syn. B. M. 1842, 85. 92.*

Thecidæidæ, *King, Permian Fossils, 81. 142.*

Thecidia, *D'Orbigny, Ann. Sci. Nat. 1848.*

Cryptobrachia, *Gray, Ann. Nat. Hist. 1848, vii. p. 435.*

Ancylobrachia (part.), *King, Permian Fossils, 81. 142.*

Thecideæ (Thécidées), *Desh. Ency. Méth. iii. t. , 1836.*

Thecidiodæ, *Agassiz, Nomen. 1847.*

1. THECIDIUM.

Char. of Fam.

Thecidium pumilum.

Fig. 24.



Fig. 25.



Fig. 24. Dorsal valve:—*f.* cardinal process.

Fig. 25. Ventral valve:—*f.* foramen (closed); *d.* deltidium; *t.* teeth; *a.* adductor impressions; *r.* retractors; *p.* pedicel-muscles.

Fig. 26. *Thecidium Mediterraneum*.

Fig. 26.—Interior of the dorsal valve, from a specimen in the cabinet of Thomas Davidson, Esq.

Thecidea (radiata), DeFr. in Fer. *Tabl. Syst.* 38, 1821.

Blainv. *Man. Malac.* 516. 629, 1825; *Dict. Sci. Nat.* liii. p. 434, 1828.

Risso, *Europ. Merid.* 393, 1826.

Thecidium, G. B. Sowerby, *Gen.* xx. 1844; *Thes. Conch.* vii. 1846.

Terebratula, Faujas, *Mont St. Pierre*, t. 27. f. 8.

Terebratula, sp., Lamk. *Hist.*

1. THECIDIUM MEDITERRANEUM.

Shell small, pale yellow, smooth, subquadrate, slightly bilobed in front, attached by the produced and pointed beak; hinge-area triangular, smooth; margins thickened and granulated internally; brachial septum 3-lobed; loop rudimentary, 4-lobed. Lon. 5, lat. 4½ lines (fig. 26).

Thecidea Mediterranea, Blainv. *Man. Malac.* 629, 1825; *Dict. Sci. Nat.* liii. p. 434, 1828.

Desh. in Lamk. *Hist.* ed. 2. vii. p. 348; *Ency. Méth.* iii. p. 135.

Risso, *Eur. Merid.* iv. f. 183 (bad).

Philippi, *Moll. Sicil.* i. p. 99. t. 6. f. 17; ii. p. 70.

Dav. *Ann. Nat. Hist.* 1852, p. 374.

Thecidium Mediterraneum, Sow. *Gen.* f. 6, 7; *Thes. Conch.* vii. p. 371. t. 73. f. 30-32.

Thecidea testudinaria, Michelotti, *Brach.* p. 5; *Préc. Faun. Mic.* pl. 2. f. 26.

Thecidæa spondylea, Scacchi, *Cat.* 8. f. 7-10.

Hab. Mediterranean, attached to corals.

Fossil. Miocene. Turin.

2. THECIDIDIUM WETHERELLI.

B.M.

Shell somewhat pentagonal, slightly indented in front, smooth, attached by the beak or whole surface of the ventral valve; hinge-area narrow; deltidium large, triangular, elongated; interior of larger valve furrowed by close, granular, longitudinal striæ; dorsal valve with a single deep curved sinus on each side; cardinal process large; margin minutely granulated. Lon. lat.

Thecidea Wetherelli, *Morris*, 1851, *Ann. Nat. Hist.* pl. 14. f. 1-3.

Davidson, *Mon. Cret. Brach.* p. 14. pl. 1. f. 15-26.

Fossil. *Chalk.* England (attached to shells and Echinidæ).

3. THECIDIDIUM PUMILUM.

B.M.

Shell nearly circular, free, ornamented with diverging, interrupted, granular ribs; dorsal valve circular, flat, furnished internally with a broad granular border; loop 5-7-lobed, the lobes augmenting regularly from the centre outwards; central process granulated; ventral valve with a produced uncinatè beak. Lon. 4, lat. 3½, alt. 1 line (figs. 24, 25).

Terebratulites papillatus, *Schlotheim*, 1813, *Min. Tasch.* vii. p. 113. (name only).

Terebratula pumila, *Valenc. in Lamk.* 1819, *Hist. Nat.* 58.

Dav. Ann. Nat. Hist. June 1850, pl. 14. f. 58 (not Sow).

Thecidea radians, *Brongn.* 1825, *Env. Paris*, p. 325.

Thécidée rayonnante, *DeFrance*, 1828, *Dict. Sci. Nat.* liii. p. 434. t. 80. f. 1.

Thecidea radiata, *Desh. Enc. Méth.* iii. p. 1035.

Lamk. Hist. ed. 2. vii. p. 346.

Goldf. Petr. Germ. p. 289. pl. 161. f. 2.

Thecidea papillata, *Bronn*, 1837, *Leth. Geog.* p. 633. t. 30. f. 3.

D'Orb. Ter. Crét. p. 154. pl. 523. f. 18.

Thecidea recurvirostra, *D'Orb. Ter. Crét.* p. 156 (exclud. synonym.). pl. 523. f. 9-17; *Prod.* ii. p. 260 (not *Gerv.*).

Fossil. *Chalk.* Belgium; France.

4. THECIDIDIUM RECURVIROSTRE.

B.M.

Shell regular, oval, smooth, or only marked with concentric lines of growth; free, or attached when young by the extremity of the beak; beak pointed, thick, rounded and recurved; deltidium narrow, raised; dorsal valve deeply concave, furnished internally with a wide border, radiately striated; loop unsymmetrical, 5-lobed, grooves deep, parallel with the margin. Lon. 3, lat. 2, alt. 1½ lines.

Thecidea recurvirostris, *Gerville*, *MSS.*

DeFr. 1828, *Dict. Sc. Nat.* liii. p. 435.

Goldf. Petr. Germ. ii. p. 289. t. 161. f. 3.

Thecidium curvirostre, *Sow. Genera*, f. 4, 5.

Desh. ed. Lam. vii. p. 349.

Fossil. *U. Chalk.* France.

5. THECIDIUM HIPPOCREPIS.

Shell ovate-orbicular, smooth, attached by the truncated umbo; dorsal valve concave; interior with broad striations, impressions curved, slightly digitated on their inner side, separated by a wide space. Lon. $3\frac{1}{2}$, lat. 3 lines.

Thecidea hippocrepis, *Goldfuss, Petr.* ii. p. 289. t. 161. f. 6.
D'Orb. Prod. ii. p. 260.

Thecidea vermicularis, *Bronn, Index*, p. 1267.

Terebratulites vermicularis, *Schl. Taschenb.* 1813, vii. 1. 11.

? *Thecidea prisca*, *Münster MS. Jura, Thurnau.*

Fossil. *Chalk.* Maestricht; Essen.

6. THECIDIUM HIEROGLYPHICUM.

Shell ovate-orbicular, smooth, attached by the truncated umbo; interior of ventral valve exhibits reniform vascular impressions in front of the retractorial impressions; dorsal valve flat; internally with a broad striated border, chial impression palmate, 6-lobed, converging. Lon. 5, lat. 6 lines.

Thecidea hieroglyphica, *DeFrance, Dict. Sc. Nat.* liii. 43.

Goldf. Petr. ii. p. 290. t. 161. f. 6.

Terebratula hieroglyphica, *Kefst. Natg.* ii. p. 680.

Thecidium pumilum, *G. Sow. Genera of Shells*, f. 1, 2 (t. 161. f. 6).
pumila, *Lamk.*)

Fossil. *Chalk.* Maestricht.

7. THECIDIUM DIGITATUM.

Shell irregular, smooth, attached by the truncated apex of the ventral valve; cavity of the ventral valve striated; retractorial impressions large, deep and smooth; dorsal valve transverse with a wide hinge-line; internally with a broad margin, diverging, symmetrical, palmated and 5-lobed impressions. Lon. 5, lat. 6 lines.

Thecidium digitatum, *G. Sowerby, Genera*, no. 20. f. 3.

Thecidea digitata, *Bronn, Lethæa*, p. 664. t. 30. f. 4.

Goldf. Petr. ii. p. 290. t. 161. f. 6.

Thecidea Essensis, *Rœmer, Kreid.* p. 36.

D'Orb. Prod. ii. p. 173.

Fossil. *U. Greensand.* Westphalia.

THECIDIUM RUGOSUM.

Shell irregular, attached by the truncated apex of the ventral valve; ventral valve striated lengthwise and squamose with lines of growth; dorsal valve round, slightly truncated by the hinge-line, smooth, furnished internally with a granulated margin and with 3-lobed impressions, the lobes straight and diminishing in length inwards. Lon. $2\frac{1}{2}$ lines.

Thecidea rugosa, *D'Orbigny*, 1847, *Ter. Crét.* p. 153 (" *T. hippo-crepis* ") pl. 522. f. 8-14.

Fossil. U. Greensand. France.

THECIDIUM TETRAGONUM.

Shell roundish, attached by the truncated apex of the ventral valve, smooth, with obscure lines of growth; hinge-line wide; dorsal valve with two, nearly symmetrical palmate, 4-lobed impressions, the right side largest. Lon. $2\frac{1}{2}$ lines.

Thecidea tetragona, *Ræmer*, 1839, *Ool.* t. 18. f. 4.

D'Orb. *Ter. Crét.* iv. p. 152. t. 522. f. 1-7.

Fossil. Neocomian. Hanover; France.

THECIDIUM MOREANUM.

Shell minute, rounded, trigonal, equilateral, with an acute beak; dorsal valve convex, concentrically substriated, tuberculated near the front margin; ventral valve attached by its whole breadth, area triangular, interior with a longitudinal ridge. Lon. and lat. $\frac{1}{2}$ line.

Thecidea Moreana, *Buvignier*, 1852, *Géol. de la Meuse*, p. 26. pl. 20. f. 30-32.

Fossil. Coral Rag. France.

D*. ? THECIDIUM CORALLINUM.

Shell like *T. antiqua*, but triangular, and much narrower at the hinge-line.

Thecidea Corallina, *D'Orbigny*, 1850, *Prod.* ii. p. 25.

Fossil. Coral Rag. France.

I. ? THECIDIUM CORDIFORME.

Shell oval; beak pointed; front bilobed.

Thecidea cordiformis, *D'Orbigny*, 1850, *Prod.* i. p. 344.

Fossil. Kelloway Rock? France: attached to Ammonites.

12. THECIDIDIUM DICKINSONII.

Shell minute, transversely oval, smooth; dorsal valve convex; ventral valve attached by its whole surface; area nearly as wide as the shell, straight. Lon. $1\frac{1}{4}$, lat. $2\frac{1}{4}$ lines.

Thecidea Dickinsonii, (Moore) Davidson, *Mon. Ool.* p. 14.

Fossil. *Inferior Oolite*. Somersetshire, attached to *Terebratula*.

13. ?THECIDIDIUM DUBIUM.

Thecidea dubia, D'Orb. *Prod.* i. p. 288 (undescribed).

Fossil. *Inferior Oolite*. France.

14. THECIDIDIUM TRIANGULARE.

Shell triangular, slightly bilobed, smooth, gibbose; hinge-area triangular, high and narrow; deltidium distinct. Lon. 1, lat. 1 line.

Thecidea triangularis, Davidson, 1851, *Mon. Ool.* p. 14. pl. 1. f. 11, 12; *Ann. Nat. Hist.* April 1852, pl. 14. f. 13.

D'Orb. MS. 1849, *Prod.* i. p. 316? not described.

Thecidea Viridunensis, *Buvignier*, 1852, *Géol. de la Meuse*, p. 27. pl. 20. f. 33-35.

Thecidea Davidsoni, *Buv.* *id.* p. 26. pl. 20. f. 36-38.

Fossil. *Lias* (Marlstone). Somerset (Moore).

Inferior Oolite. Cheltenham (Wright).

Bath Oolite. Caen (D'Orb.)?

15. THECIDIDIUM RUSTICUM.

Shell minute, squarish, slightly convex, smooth; interior of dorsal valve with a prominent muscular fulcrum; internal margin thickened and granulated; apophysary ridge simple, parallel with the margin, and a little within it, deeply bilobed. Lon. 1. lat. 1 line.

Thecidea rustica, (Moore) Davidson, 1851, p. 15. pl. 1. f. 14.

Fossil. *Upper Lias*. Ilminster.

16. THECIDIDIUM BOUCHARDII.

Shell transversely elongated, smooth, attached by the whole surface of the ventral valve; hinge-area long and narrow; deltidium broad, short and elevated; dorsal valve convex; margin shelving. Lon. 3, lat. 4 lines.

Thecidea Bouchardii, *Dav. Mon. Ool.* 1851, p. 14. pl. 1. f. 15. 16; *Ann. Nat. Hist.* April 1852, pl. 14. f. 10-12.

Fossil. *Lias* (Marlstone). Ilminster, attached to *Rhynchonella*. France.

17. THECIDIUM MOOREI.

Shell subquadrate, smooth, attached by the whole surface of the ventral valve; valves slightly indented in front; front margins much thickened, steep; dorsal valve almost flat; lower valve with a well-defined triangular area; deltidium large, elevated. Lon. 2, lat. 2, alt. 1 line.

Thecidea Moorei, Davidson, 1851, *Mon. Ool. Brach.* p. 13. pl. 1. f. 10.

Fossil. *Lias* (*Marlstone*). Ilminster, attached to *Rhynchonella*.

18. THECIDIUM DESLONGCHAMPSII.

Shell irregularly oblong, smooth, attached by the truncated beak of the ventral valve; *ventral valve* deep; area wide, short and irregular; deltidium indistinct; *dorsal valve* subcircular, slightly convex, its interior surface surrounded by a broad, granulated border; a single central septum divides the brachial cavities, in each of which there is a granulated lobe. Lon. 2, lat. $1\frac{1}{2}$, alt. $1\frac{1}{2}$ lines.

Thecidea Deslongchampsii, Davidson, 1852, *Ann. Nat. Hist.* April, pl. 14. f. 6-9.

Fossil. *Lias*. Normandy.



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